# MIAMI VALLEY ITS

# Early Deployment Plan

## Final User Service Plan

July 1997

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# Early Deployment Plan

# User Service Plan

**Prepared by:**

**BRW, INC.**

**in association with:**

**Battelle**
**CH2M Hill**
**LJB, Inc.**
**TEC Engineering, Inc.**

**Prepared for:**

**Miami Valley Regional Planning Commission**
**40 West Fourth Street, Suite 400**
**Dayton, Ohio 45402**

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# 1.0 INTRODUCTION

## 1.1 OVERVIEW

This User Service Plan is the first major product of the process to develop an Intelligent Transportation System (ITS) Early Deployment Plan (EDP) for the Miami Valley. This User Service Plan documents the travel environment, growth trends and transportation system user needs of the Miami Valley. The process used to prioritize these needs, as well as develop and prioritize User Services and user service objectives, is also presented. Finally, performance measures are established to measure the success of the User Services in meeting the high priority user needs.

## 1.2 ITS STRATEGIC DEPLOYMENT PLANNING PROCESS

Intelligent Transportation Systems represent an approach to serving transportation needs and resolving transportation problems through an intermodal, strategic approach which applies advanced and emerging technologies. Preparation of the Miami Valley ITS EDP has followed the ten step ITS Planning Process developed by the Federal Highway Administration. This process is illustrated in Figure l-l.

The federal ITS planning and deployment process emphasizes the significance of a strategic approach, a user-needs perspective and a strong institutional coalition. The deployment of ITS should be structured and strategic in order to protect against the inefficient allocation of resources and to ensure that ITS potential can be fully realized. Deployment should be based upon solving local user needs rather than simply looking for opportunities to utilize new technologies. Finally, successful deployment depends upon the development of an institutional framework and coalition of transportation agencies and other stakeholders. Such, a coalition and the cooperation it fosters help ensure that each agency's needs, constraints, opportunities and responsibilities are addressed and that the resulting system meets the needs and expectations of each agency and the public.

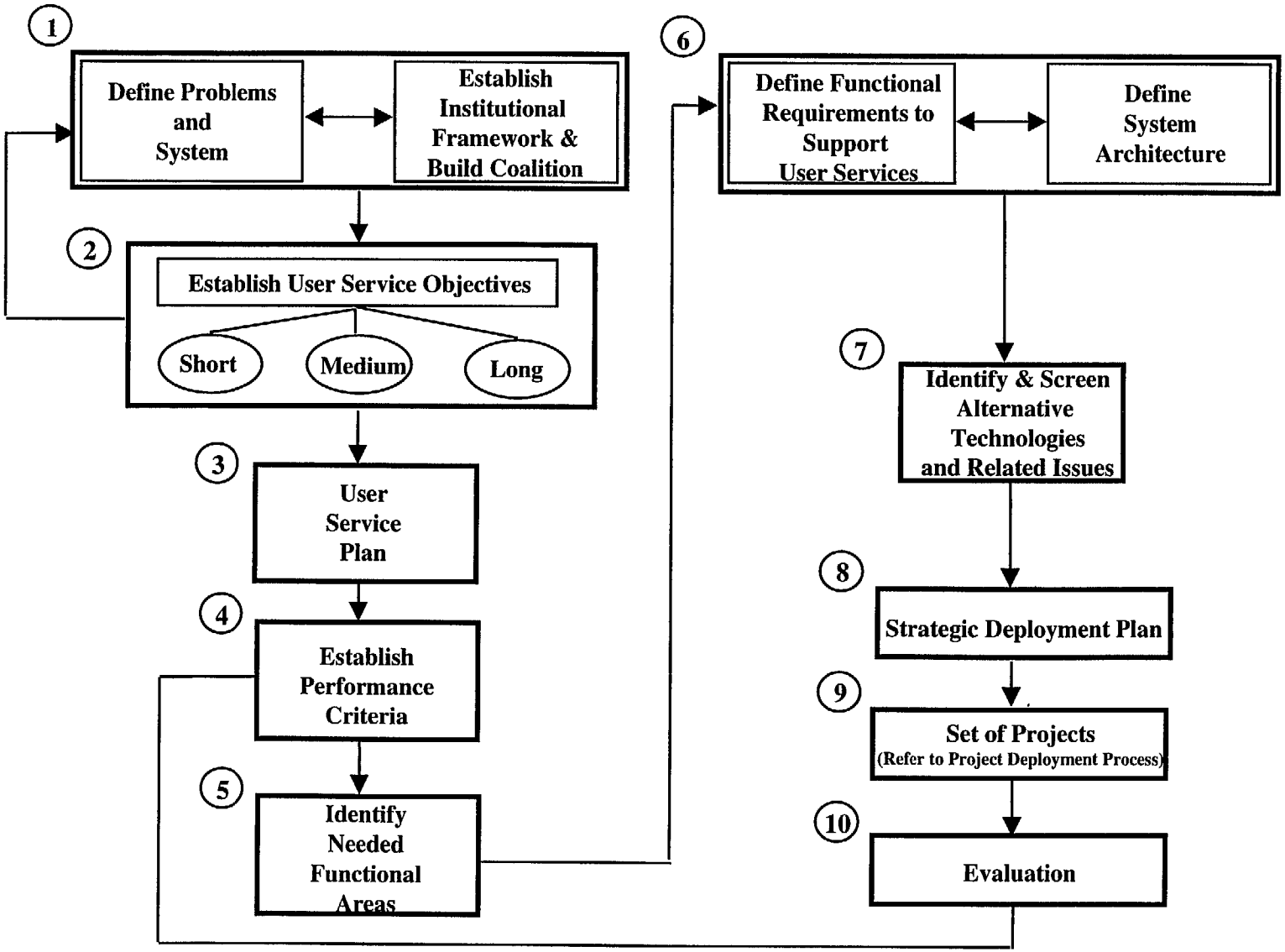



**Figure 1-1**

# FHWA ITS Planning Process

Source: "IVHS Planning and Project Deployment Process", FHWA, April 1993

# 2.0 VISION, GOALS AND OBJECTIVES

## 2.1 OVERVIEW

One of the initial steps in the development of the Miami Valley ITS Early Deployment Plan was to identify a vision of eventual ITS deployment, a destination to be reached via the road map represented by the Early Deployment Plan. Along with the development of this vision a list of goals and associated objectives were developed to help guide the preparation of the EDP.

## 2.2 ITS VISION

The development of a shared vision for the desired end state of the Miami Valley transportation system relative to ITS deployment is an early and important activity in the development of the EDP. Goals and objectives were developed to reflect the working vision statement.

## Vision Statement

*The vision for the Miami Valley is one of enhanced transportation productivity, mobility, efficiency and safety within the region with a reduction in energy use and improvement in the environment through the use of cost effective ITS technologies and systems.*

The vision starts with mutual cooperation between agencies and jurisdictions within the region to plan and implement advanced ITS technologies. The vision is an integrated approach to solve transportation problems. The vision seeks to improve the use of existing infrastructure and the choices of users and operators. The vision approaches problems that can be effectively addressed with the resources available within the region.

The vision for the Miami Valley applies to all single and multimodal users who travel within and those who travel through the area. The vision is also for transportation operators and agencies, and the surrounding community. The vision for the region includes the following elements:

- **Evolution**
  The implementation of ITS technologies within the Miami Valley will occur in an evolutionary manner. They will be introduced gradually as the costs and benefits of the technologies are demonstrated and justified for the region.

- **Travel Information**
  Information regarding the transportation system within the Miami Valley will be immediately available to users and operators through a variety of devices such as television, radio, personal computers at home and at work, public kiosks, handheld mobile devices, roadway signage and other interactive communication devices. Users and operators will be able to inquire and receive information about current and expected traffic conditions, travel times, incidents and alternative routes. Users and operators will be also able to inquire and receive information about transit status and schedules. This information will allow users to make informed decisions about when to leave, how to travel, and what route to take.

- **Traffic Management**
  The traffic on selected Miami Valley routes will be monitored and controlled through an integrated system. Integrated systems will control arterial and freeway operations, monitor and make adjustments to lane usage, speed limits, ramp access and traffic signals. The goal of an area-wide system is to maximize the efficiency of the overall network based on actual conditions. In cooperation with travel information systems, traffic control operators can notify users of current or changing conditions and thereby redirect traffic or set drivers' expectations for safer more efficient flow. An incident management system will identify incidents, dispatch the appropriate response **services, and serve** to remove and mitigate **the effects** of incidents throughout the area.

- **Commercial Operations**
  In coordination with national and regional initiatives, commercial carriers will be able to drive through the region with minimal delays. Commercial carriers will have access to traveler information systems that can assist with routing, scheduling and dispatching optimization.

- **Electronic Payment Services**
  Devices will allow users to electronically pay fares and fees with a minimum amount of delay. Payment systems will collect fares and fees from users and operators in an integrated manner with other collection systems.

- **Travel Demand**
  Users who wish to ride share can immediately determine potential candidates and dynamically create car pools. Devices such as smart cards, public kiosks and personal digital assistants will allow users to communicate with each other and work together to reduce the number of vehicles on the roadway. ITS technologies will allow for detailed traffic data collection and analysis. This information can support demand management techniques such as congestion pricing and large employer travel management.

- **Transit Systems**
  Public transportation will be more attractive by offering faster service resulting from traffic signal priority at selected locations and control of

special ramps or lanes. Service will also be improved through the use of technology to track vehicles, accurately maintain schedules, predict demand and operate fleets more efficiently with a minimum of downtime and delay. Users of transit systems can be informed immediately on the status of their chosen route using a variety of devices such as telephones with services such as audiotext, public kiosks, personal computers and personal digital assistants. Users will be encouraged to use transit systems through improved information and easier access to information. Fare collection will be made easier and more accessible through addressing policies and barriers.

- Vehicle Tracking
  Systems will monitor and track the status of commercial carriers, transit operators, emergency and service vehicles, and hazardous material carriers. These systems will allow operators to efficiently schedule their services, monitor on-time performance, and quickly respond to user needs.

- **Emergency Management**
  Devices will notify authorities of the need for dispatching emergency vehicles to the site of a collision or incident. Systems will coordinate the response from fire, police and medical agencies resulting in fast response in the most appropriate manner. Other systems will coordinate the removal of incidents to promote the timely return of the travel network to peak performance.

- **Navigation**
  Systems and on-board devices will assist drivers with planning and following safe and efficient routes throughout the Miami Valley. These devices will also provide local information such as services and attractions.

- **Pollution**
  Air pollution will be reduced through improved efficiency and use of transportation systems including demand management strategies. Dynamic ride-sharing systems will encourage the use of high occupancy vehicles. Traveler information systems will decrease the number of vehicle miles traveled through better planning. Public transportation systems will improve information available to users which will increase the use of public transit services. Traffic management systems will improve the flow of vehicles and reduce the level of pollution. Detection systems will monitor vehicle emissions and support enforcement efforts.

- **Cooperation**
  The future of transportation in the Miami Valley starts with the mutual cooperation among transportation agencies within the region. All agencies from the Ohio Department of Transportation (ODOT) to city traffic agencies to local fire, police and medical service providers will work together to promote and encourage the most productive and safest operation of the transportation network. These agencies will work together to plan, design, implement and operate ITS systems in a cooperative and mutual manner.

- **Institutional Issues and Barriers**
  Barriers to deploying ITS technologies and arrangements will be researched and identified. Legislative initiatives will be developed and submitted where appropriate to reduce barriers, resolve privacy concerns and encourage arrangements such as public/private partnerships.

## 2.3 GOALS AND OBJECTIVES

Table 2.1 presents the goals and associated objectives for the Miami Valley ITS Early Deployment Plan.

**TABLE 2.1**
**GOALS AND OBJECTIVES**

| Goal | Objectives |
|---|---|
| 1. To create a state-of-the-art ITS transportation system | • To establish an ITS architecture that:<br>- Is open, receptive and adaptable to meet future area architecture and field test needs.<br>- Is consistent to the maximum degree possible with developing national standards.<br>• To develop and integrate the following systems throughout the area as appropriate:<br>- Travel and Traffic Management<br>- Public Transportation Management<br>- Electronic Payment Services<br>- Commercial Vehicle Operations<br>- Emergency Management |
| 2. To enhance productivity | • To reduce the travel delay and increase the reliability and predictability of moving people and goods for all transportation users.<br>• To improve the ability of users and operators tc perform travel planning using real-time travel information.<br>• To reduce the operational costs to operators incurred from poorly operating transportation facilities.<br>• To reduce the scheduling and processing delays and costs to users and operators associated with the regulation of vehicles.<br>• To reduce the costs and improve the quality of data collection for transportation system planning, use, operations, maintenance and installations. |

| Goal | Objectives |
|---|---|
| 3. To improve safety | • To reduce the number and severity of motor vehicle collisions and associated injuries and fatalities.<br>• To improve the average response time of emergency services.<br>• To improve the ability to identify, respond, remove and / or mitigate the effects of incidents.<br>• To improve the tracking of hazardous material movements, and the response to and mitigation of the effects due to loss of containment situations.<br>• To enhance personal security on all modes of transportation. |
| 4. To reduce energy consumption and improve the environment | • To increase the use of public transit and other shared ride alternatives.<br>• To reduce harmful emissions per unit of travel for all transportation modes.<br>• To maintain and improve air quality standards.<br>• To reduce the energy consumption per unit of travel for all transportation modes.<br>• To reduce the need for new right-of-way requirements and related community disruption associated with transportation facility improvements. |
| 5. To enhance mobility and accessibility | • To improve the accessibility and availability of travel options information to users of all transportation facilities.<br>• To reduce the variability and to simplify the USC of public transportation.<br>• To improve the predictability of travel time for all transportation modes.<br>• To reduce the complexity of scheduling and fee collection procedures for operators and users of intermodal facilities. |
| 6. To increase efficiency | • To reduce congestion and associated costs.<br>• To optimize the operational efficiency of goods and people movement on existing facilities.<br>• To increase average vehicle occupancy.<br>• To reduce time lost in intermodal interchange.<br>• To increase capacity of existing infrastructure through ITS Deployment. |

Source: BRW, Inc., May 1997

# 3.0 ITS USER SERVICES

## 3.1 OVERVIEW

The identification of appropriate user services based on local transportation needs is a crucial step in the development of an ITS Early Deployment Plan for the Miami Valley. The processes followed to identify user needs and the User Services through which they will be addressed are described in Section 6.0, Deficiencies Assessment. This Section, largely excerpted from the ***National ITS Program Plan*** (First Edition, March 1995) describes the concept and role of User Services and describes the User Services identified by the FHWA for use in ITS deployment planning.

The national ITS program is focused on the development and deployment of a collection of inter-related User Services. ***Thirty (30)*** User Services have been defined to date. This list of User Services is neither exhaustive nor final. There are a wide array of transportation services that could develop that are not included in this list. Furthermore, the services here are expected to change over time. Some will develop largely as envisioned, new services will emerge, and others, for various reasons, may never be developed. This list of services, and the accompanying descriptions, are expected to evolve through program plan updates and new editions.

The users of a particular service will vary and could include travelers of any mode, operators of transportation management centers, transit operators, Metropolitan Planning Organizations (MPOs), commercial vehicle owners and operators, state and local governments, and many others who ultimately may take advantage of ITS.

## 3.2 CHARACTERISTICS OF USER SERVICES

Although each User Services is unique, they share several common characteristics. User services are:

- Composed of Multiple Technological Elements

  A single user service will usually depend upon several technologies such as advanced communications, mapping, and surveillance, and which may be shared with other services.

- **Building Blocks**

  Once the basic technological functions, such as communications or surveillance, have been deployed for one or more service, the additional functions needed by one or more related services may require only a small incremental cost. The added functions will in turn produce supplementary benefits. User services can be combined for deployment in a variety of ways depending upon local priorities, needs, and market forces.

- **Adaptable to rural, urban, and suburban settings**

  ITS User Services are not specific to a particular location. Rather, the function of the service can be adapted to meet local needs and conditions.

## 3.3 USER SERVICE BUNDLES

Although it may be possible to deploy a system that provided a single User Service, in many cases, services are more likely to be deployed in combination with other *services* or *"bundle"* which share some commonality.

The 30 User Services have been sorted into categories termed "bundles." The services within these bundles, as shown in Table 3.1, may be related in a number of ways. In some cases, the institutional perspectives of organizations that will deploy the services provided the rationale for the formation of a specific bundle. In other cases, bundles were organized around common technical functionalities. These services could have been bundled in any number of ways. Table 3.1 presents only one of a number of possibilities. When the services are actually deployed, it is likely that services will also be mixed and matched among the bundles, as well as within a bundle.

**Bundle 1: Travel and Transportation Management**

- En-route Driver Information

  *Driver advisories and in-vehicle signing for convenience and safety during travel.*

  Once travel begins, driver advisories convey real-time information about traffic conditions, incidents, construction, transit schedules, and weather' conditions to drivers of personal, commercial and public transit vehicles. This information allows a driver to select the best route or shift to another mode in mid-trip if desired.

  In-vehicle signing, the second component of en-route driver information, would provide the same types of information found on physical road signs today, directly in the vehicle.

**TABLE 3.1**
**USER SERVICE BUNDLES**

| Bundle | User Services |
|---|---|
| 1. Travel and Transportation Management | 1. En-route Driver Information<br>2. Route Guidance<br>3. Travelers Services Information<br>4. Traffic Control<br>5. Incident Management<br>6. Emissions Testing and Mitigation<br>7. Highway-Rail Intersection * |
| 2. Travel Demand Management | 1. Demand Management and Operations<br>2. Pm-Trip Travel Information<br>3. Ride Matching and Reservation |
| 3. Public Transportation Operations | 1. Public Transportation Management<br>2. En-route Transit Information<br>3. Personalized Public Transit<br>4. Public Travel Security |
| 4. Electronic Payment | 1. Electronic Payment Services |
| 5. Commercial Vehicle Operations | 1. Commercial Vehicle Electronic Clearance<br>2. Automated Roadside Safety Inspection<br>3. On-board Safety Monitoring<br>4. Commercial Vehicle Administrative Processes<br>5. Hazardous Materials Incident Response<br>6. Freight Mobility |
| 6. Emergency Management | 1. Emergency Notification and Personal security<br>2. Emergency Vehicle Management |
| 7. Advanced Vehicle Control and Safety Systems | 1. Longitudinal Collision Avoidance<br>2. Lateral Collision Avoidance<br>3. Intersection Collision Avoidance<br>4. Vision Enhancement for Crash Avoidance<br>5. Safety Readiness<br>6. Pre-Crash Restraint Deployment<br>7. Automated Highway System |

Source: ITS National Program Plan (First Edition, March 1995; United States Department of Transportation)

* This User Service has not been assigned to a Bundle.

- Route Guidance

  *Provides travelers with simple instructions on how to best reach their destinations.*

  The route guidance service provides a suggested route to reach a specific destination. Early route guidance systems will be based on static information about the roadway network, transit schedules, etc. When fully deployed, route guidance systems will provide travelers with directions to their destinations based on real-time information about the transportation system. The route guidance service will consider traffic conditions, status and schedule of transit systems, and road closures in developing the best route. Directions will generally consist of simple instructions on turns or other upcoming maneuvers. Users of the service include not only drivers of all types of vehicles, but also non-vehicular travelers, such as pedestrians or bicyclists, who could get specialized route guidance from a hand-held device.

- Traveler Services Information

  *Provides a business directory, or "yellow pages," of service information.*

  Traveler services information provides quick access to travel related services and facilities. Examples of information that might be included are the location, operating hours, and availability of food, parking, auto repair, hospitals, and police facilities. Traveler services information would be accessible in the home, office or other public locations to help plan trips, and might also be available en-route.

- Traffic Control

  *Manages the movement of traffic on streets and highways.*

  This service will provide for the integration and adaptive control of the freeway and surface street systems to improve the flow of traffic, give preference to public safety, transit or other high-occupancy vehicles, and minimize congestion while maximizing the movement of people and goods. Through appropriate traffic controls, the service will also promote the safety of non-vehicular travelers, such as pedestrians and bicyclists. This service requires advanced surveillance of traffic flows, analysis techniques for. determining appropriate traffic signal and ramp metering controls, and communication of these controls to the roadway infrastructure. This service gathers data from the transportation system, organizes it into usable information, and uses it to determine the optimum assignment of right-of-way to vehicles and pedestrians. The real-time traffic information collected by the Traffic Control service also provides the foundation for many other user services.

- Incident Management

  *Helps public and private organizations quickly identify incidents and implement a response to minimize their effects on traffic.*

  This service enhances existing capabilities for detecting and verifying incidents, in both urban and rural areas, and then taking the appropriate actions in response. The service would use advanced sensors, data processing, and communications to improve the incident management and response capabilities of transportation and public safety officials, the towing and recovery industry, and others involved in incident response.

- Emissions Testing and Mitigation

  *Provides information for monitoring air quality and developing air quality improvement strategies.*

  This service uses advanced vehicle emissions testing systems to provide information to identify environmental "hot spots" and implement strategies to reroute traffic around sensitive air quality areas, or control access to such areas. Other technologies provide identification of vehicles that are emitting levels of pollutants that exceed state, local or regional standards, and provides information to drivers or fleet operators to enable them to take corrective action. The service also provides transportation planning and operating agencies with information that can be used to facilitate implementation and evaluation of various pollution control strategies.

- Highway-Rail Intersection ( Not *yet assigned to a Bundle)*

  *Automated systems that allow deployment of safety systems to adequately warn drivers of crossing hazards.*

  Locations where highways cross rail lines at grade can be dangerous and pose special challenges for motorists and train operators. Highway - Rail Intersections (HRI)systems provide improved control of highway and train traffic to avoid or decrease the severity of collisions that occur between trams and vehicles at intersections.

  Deployment objectives for Railroad Grade Crossings as part of the National lTS Architecture are:

  - Improve and automate warnings at highway rail crossings.
  - Provide travelers with advanced warning of crossing closures.
  - Coordinate rail movements with the traffic signal control system.

**Bundle 2: Travel Demand Management**

- Demand Management and Operations

  *Supports policies and regulations designed to mitigate the environmental and social impacts of traffic congestion.*

  This service generates and communicates management and control strategies that support the implementation of programs to reduce the number of individuals who choose to drive alone, especially to work; increase the use of high-occupancy vehicles, transit, and commuter rail; and provide a variety of mobility options for those who wish to travel in a more efficient manner, for example in non-peak periods. Demand management strategies could ultimately be applied dynamically, when congestion or pollution conditions warrant. For example, disincentives such as increased tolls and parking fees could be applied during pollution alerts or peak travel periods, while transit fares would be lowered to accommodate the increased number of travelers changing modes from driving alone.

- Pre-Trip Travel Information

  *Provides information for selecting the best transportation mode, departure time, and route.*

  Pre-trip travel information allows travelers to access a complete range of intermodal transportation information at home, work, and other major sites where trips originate. Real-time information on transit and commuter rail routes, schedules, transfers and fares, and ride matching services are available to encourage the use of alternatives to the single occupancy vehicle. Information needed for long, inter-urban or vacation trips would also be available. Real-time information on accidents, road construction, alternate routes, traffic speeds along given routes, parking conditions, event schedules, and weather information is also included. Based on this information, the traveler can select the best route, modes of travel and departure time, or decide not to make the trip at all.

- Ride Matching and Reservation

  *Makes ride sharing easier and more convenient.*

  This service provides real-time ride matching information and reservations to users in their homes, offices or other locations, and assist transportation providers, as well as van/carpools, with vehicle assignments and scheduling. This will expand the market for ridesharing as an alternative to single occupant automobile travel.

**Bundle 3: Public Transportation Operations**

- Public Transportation Management

  *Automates operations, planning, and management functions of public transit systems.*

  This service provides computer analysis of real-time vehicle and facility status to improve transit operations and maintenance. The analysis identifies deviations from schedule and provides potential solutions to dispatchers and drivers. Integrating this capability with traffic control services can help **maintain** transportation schedules and assure transfer connections in intermodal transportation. Information regarding passenger loading, bus running times, and mileage accumulated will help improve service and facilitate administrative reporting. Automatically recording and verifying performed tasks will also enhance transit personnel management.

- En-route Transit Information

  *Provides information to travelers using public transportation after they begin their trips.*

  This service provides information to assist the traveler once public transportation travel begins. Real-time, accurate transit service information on board the vehicle helps travelers make effective transfer decisions and itinerary modifications as needed while a trip is underway.

- Personalized Public Transit

  *Flexibly routed transit vehicles offer more convenient service to customers.*

  Small publicly or privately operated vehicles provide on-demand routing to pick up passengers who have requested service and deliver them to their destinations. Route deviation schemes, where vehicles would leave a fixed route for a short distance to pick up or discharge passengers, is another way of improving service. Vehicles can include small buses, taxicabs, or other small, shared ride vehicles. This service can provide almost door-to-door service, expanding transit coverage to lesser populated locations and neighborhoods. This can potentially provide transportation at lower cost and with greater convenience than conventional fixed route transit.

- Public Travel Security

  *Creates a secure environment for public transportation patrons and operators.*

  This service provides systems that monitor the environment in transit stations, parking lots, bus stops, and on-board transit vehicles, and generate alarms, either automatically or manually, when necessary.

**Bundle 4: Electronic Payment**

- Electronic Payment Services

  *Allows travelers to pay for transportation services electronically.*

  This service will foster intermodal travel by providing a common electronic payment medium for all transportation modes and functions, including tolls, transit fares, and parking. The service provides for a common service fee and payment structure using "smart cards" or other technologies. Such systems will be truly multi-use, allowing personal financial transactions on the same medium. The flexibility that electronic payment services offer will also facilitate travel demand management, if **conditions** warrant. They could, if local authorities so choose, enable application of road pricing policies which could influence departure times and mode selection.

**Bundle 5: Commercial Vehicle Operations**

- Commercial Vehicle Electronic Clearance

  *Facilitates domestic and international border clearance, minimizing trips.*

  This service will enable transponder-equipped trucks and buses to have their safety status, credentials, and weight checked at mainline speeds. Vehicles that are safe and legal and have no outstanding out-of-service citations will be allowed to pass the inspection/weigh facility without delay. By working with Mexico and Canada, a more efficient traffic flow would be provided at border crossings and the deployment of technologies in these countries could ultimately prevent overweight, unsafe, or improperly registered vehicles from entering the United States.

- Automated Roadside Safety Inspection

  *Facilitates roadside inspections.*

  Automated roadside inspections would allow real-time access at the roadside to the safety performance record of carriers, vehicles, and drivers. Such access will help determine which vehicle or driver should be stopped for an inspection, as well as ensuring timely correction of previously identified problems.

  This service would also automate as many items as possible of the manual inspection process. It would, for example, allow for more rapid and accurate inspection of brake performance at the roadside. Through the use of sensors and diagnostics, it would efficiently check vehicle systems and driver requirements and ultimately driver alertness and fitness for duty.

- On-Board Safety Monitoring

  *Senses the safety status of a commercial vehicle, cargo, and driver.*

  On-board systems would monitor the safety status of a vehicle, cargo, and driver at mainline speeds. Vehicle monitoring would include sensing and collecting data on the condition of critical vehicle components such as brakes, tires, and lights, and determining thresholds for warnings and countermeasures. Cargo monitoring would involve sensing unsafe conditions relating to vehicle cargo, such as shifts in cargo while the vehicle is in operation. Driver monitoring is envisioned to include the monitoring of driving time and alertness using non-intrusive technology and the development of warning systems for the driver, the carrier, and the enforcement official.

- Commercial Vehicle Administrative Processes

  *Provides electronic purchasing of credentials and automated mileage and fuel reporting and auditing.*

  Electronically purchasing credentials would provide the carrier with the capability to electronically purchase annual and temporary credentials via computer link. It will reduce burdensome paperwork and processing time for both the states and the motor carriers. For automated mileage and fuel reporting and auditing, this service would enable participating interstate carriers to electronically capture mileage, fuel purchases, trip, and vehicle data by state. It would also automatically determine mileage traveled and fuel purchased in each state, for use by the carrier in preparing fuel tax and registration reports to the states.

- Hazardous Material Incident Response

  *Provides immediate description of hazardous materials to emergency responders.*

  This service would enhance the safety of shipments of hazardous materials by providing enforcement and response teams with timely, accurate information on cargo contents to enable them to react properly in emergency situations. When an incident involving a truck or railcar carrying hazardous material occurs, the material or combination of materials involved would be electronically provided to emergency responders and enforcement personnel at the scene so that the incident can be handled properly.

- Freight Mobility

  *Provides communications between drivers, dispatchers, and intermodal transportation providers.*

  The availability of real-time traffic information and vehicle location for commercial vehicles would significantly enhance the management of fleet

operations by helping drivers to avoid congested areas and improving the reliability and efficiency of pickups and deliveries. These benefits would be particularly important for operators of intermodal and time-sensitive fleets who can use these ITS technologies to make their operations more efficient and reliable.

**Bundle 6: Emergency Management**

- Emergency Notification and Personal Security

  *Provides immediate notification of an incident and an immediate request for assistance.*

  This service includes two capabilities: driver and personal security, and automatic collision notification. Driver and personal security capabilities provide for user initiated distress signals for incidents like mechanical breakdowns or car jackings. When activated by an incident, automatic collision notification transmits information regarding location, nature, and severity of the crash to emergency personnel.

- Emergency Vehicle Management

  *Reduces the time it takes emergency vehicles to respond to an incident.*

  This service provides public safety agencies with fleet management capabilities, route guidance, and signal priority and/or preemption for emergency vehicles. Fleet management will improve the display of emergency vehicle locations and help dispatchers send the units that can most quickly reach an incident site. Route guidance directs emergency vehicles to an incident location, while signal priority optimizes the traffic signal timing in an emergency vehicle's route.

**Bundle 7: Advanced Vehicle Control and Safety Systems**

- Longitudinal Collision Avoidance

  *Helps prevent head-on, rear-end or backing collisions between vehicles, or between vehicles and other objects or pedestrians.*

  This service helps reduce the number and severity of collisions. It includes the sensing of potential or impending collisions, prompting a driver's avoidance actions, and temporarily controlling the vehicle.

- Lateral Collision Avoidance

  *Helps prevent collisions when vehicles leave their lane of travel.*

  This service provides crash warnings and controls for lane changes and road departures. It will help reduce the number of lateral collisions involving two

or more vehicles, or crashes involving a single vehicle leaving the roadway. For changing lanes, a situation display can continuously monitor the vehicle's blind spot, and drivers can be actively warned of an impending collision. If needed, automatic control can effectively respond to situations very rapidly. Warning systems can also alert a driver to an impending road departure, provide help to keeping the vehicle in the lane, and ultimately provide automatic control of steering and throttle in dangerous situations.

- Intersection Collision Avoidance

  *Helps prevent collisions at intersections.*

  This service warns drivers of imminent collisions when approaching or crossing an intersection or railroad grade crossing that has traffic control (e.g., stop signs or a signal). This service also alerts the driver when the proper right-of-way at the intersection or grade crossing is unclear or ambiguous.

- Vision Enhancement for Crash Avoidance

  *Improves the driver's ability to see* the *roadway and objects that are on or along the roadway.*

  Improved visibility will allow drivers to avoid potential collisions with other vehicles, obstacles in roadway, or parked or moving trams, as well as help the driver comply with traffic signs and signals. This service requires in-vehicle equipment for sensing potential hazards, processing this information, and displaying it in a way that is useful to a driver.

- Pm-Crash Restraint Deployment

  *Anticipates an imminent collision and activates passenger safety systems before the collision occurs, or much earlier in the* crash *event than is currently feasible.*

  This service identifies the velocity, mass, and direction of the vehicles or objects involved in a potential crash, and the number, location, and major physical characteristics of any occupants. Responses include tightening lap-shoulder belts, arming and deploying air bags at the optimal pressure, and deploying roll bars.

- Safety Readiness

  *Provides warnings about the condition-of the driver, the vehicle, and the roadway.*

  In-vehicle equipment will unobtrusively monitor a driver's condition and provide a warning if he or she is becoming drowsy or otherwise impaired. This service could also internally monitor critical components of the automobile, and alert the driver to impending malfunctions. Equipment

within the vehicle could also detect unsafe road conditions, such as bridge icing or standing water on the roadway, and provide a warning to the driver.

- Automated Highway Systems

  *Provides a fully automated,"hands-of," operating environment.*

  Automated highway systems are a long-term goal of ITS which would provide vast improvements in safety by creating a nearly accident free driving environment. Drivers could buy vehicles with the necessary instrumentation or retrofit an existing vehicle. vehicles that are incapable of automated operation, during some transition period, would drive in lanes without automation.

# 4.0 GENERAL STUDY AREA CHARACTERISTICS

## 4.1 OVERVIEW

This section provides a brief overview of study area location, relevant physical features and demographics. This background information provides part of the foundation for the assessment of specific transportation problems and opportunities.

## 4.2 LOCATION AND PHYSICAL FEATURES

The Miami Valley Regional Study Area includes Montgomery, Greene, Miami, and Clark Counties in west-central Ohio. These four counties encompass a total area of 1,684 square miles. The most urbanized portions of the study are the City of Dayton (east-central Montgomery County) and the City of Springfield (Clark County).

The study area includes a diverse range of land uses, including agricultural, low- to medium-density suburban, high-density urban, commercial, and industrial uses.

Rivers represent the only significant topographic constraint to mobility within the study area, which does not include significant elevation changes. The Miami and Stillwater rivers converge with the Great Miami River just north of Downtown Dayton, essentially at the SR 4 junction with I-75. The Great Miami River includes several east-west turns through the City of Dayton and I-75 crosses the river four times. As discussed in greater detail in Section 6.0, these river crossings impose a significant constraint to roadway improvements.

## 4.3 DEMOGRAPHIC PROFILE

Population

The population within the study area is expected to grow from 951,222 in 1990 to 1,026,400 in 2015 (+7.9%). This reverses the trend of the previous two decades when the area saw a decline in population. The Ohio Department of Development population projections are shown in Table 4.1. Growth is expected in all four counties in the study area with Miami County increasing the most (17.2%) and Clark County increasing the least (2.9%).

**TABLE 4.1**
**MIAMI VALLEY STUDY AREA POPULATION PROJECTIONS**

| County | 1970 | 1990 | 2000 | 2010 | 2015 | % Change | |
|---|---|---|---|---|---|---|---|
| | | | | | | 1970-1990 | 1990-2015 |
| Clark | 157,115 | 147,500 | 149,600 | 150,900 | 151,800 | -6.1% | 2.9% |
| Greene | 125,057 | 136,731 | 147,300 | 155,300 | 158,400 | 9.3% | 15.8% |
| Miami | 84,342 | 93,182 | 99,200 | 106,100 | 109,200 | 10.5% | 17.2% |
| Montgomery | 608,413 | 573,809 | 588,600 | 597,000 | 607,000 | -5.7% | 5.8% |
| **Total** | **974,927** | **951,222** | **984,700** | **1,009,300** | **1,026,400** | **-2.4%** | **7.9%** |

Source: Office of Strategic Research, Ohio Department of Development

When broken down to the township and/or municipality level, the forecast is for a stabilization of population in the older urban areas, continued growth in the suburbs, and some overflow of that growth into the surrounding rural areas. The major change in this forecast from recent trends is the stabilization of the population in the central city and the older suburbs, which have seen substantial population decline in recent decades. The reason for this shift is that the average household size, which has been dropping rapidly since 1970, should level off at around 2.50 persons per household, so that population densities in older areas (which cannot increase significantly through new construction) will stabilize.

## Employment

Labor market projections to the year 2000 from the Ohio Bureau of Employment Services indicate that employment opportunities in the Dayton-Springfield Metropolitan Statistical Area, which consists of the four-county study area, are expected to be good through the turn of the century with the creation of 46,600 new jobs. Recent trends in the economy are generally projected to continue with growth occurring in the service-producing industries versus the goods-producing industries. Total job growth for the region is predicted to average 1.1 percent annually through the year 2000, which is similar to the projected annual growth rate for Ohio.

Statistics derived from Ohio Bureau of Employment Services data show the 1990 employment level of the study area is forecasted to grow 10.5% to 446,400 in 2015. These employment projections are shown in Table 4.2. As with population, employment growth is expected throughout the region. Unlike population, this employment growth does not reverse a previous trend, as the area saw substantial employment growth even during the previous two decades when its population was often in decline. Employment was able to grow in spite of population decline with new jobs being filled by new entrants into the labor force from the existing population. In the future, employment is expected to grow slightly faster than the population. The difference between the two will be picked up by increased commuting into the region from surrounding areas.

The Miami Valley region is gaining an increasing number of commuters from surrounding areas, particularly the fast-growing counties on the northern edge of the Cincinnati area. In 1990, about 1 in 8 of the region's workers was estimated to commute into the region from outside areas, which was up from an estimated 1 in 10 in 1980. It is believed that this could increase to 1 in 7 by the year 2015.

**TABLE 4.2**
**STUDY AREA EMPLOYMENT PROJECTIONS**

| County | 1970 | 1990 | 2015 | % Change | |
|---|---|---|---|---|---|
| | | | | 1970-1990 | 1990-2015 |
| Clark | 54,940 | 65,460 | 73,070 | 19.1% | 11.6% |
| Greene | 36,800 | 62,200 | 82,800 | 69.0% | 33.1% |
| Miami | 24,600 | 39,400 | 44,600 | 60.2% | 13.2% |
| Montgomery | 248,600 | 303,200 | 319,000 | 22.0% | 5.2% |
| **Total** | **364,940** | **470,260** | **519,470** | **28.9%** | **10.5%** |

**Source:** MVRPC Transportation Vision and Long Range Transportation Plan
Ohio Bureau of Employment Services

**Location of Growth**

As shown in Tables 4.1 and 4.2, the greatest increases in population and employment are forecasted to occur within Miami and Greene, which include the most undeveloped land. Relative to the Cities of Dayton and Springfield, the most rapidly developing areas tend to be at the fringes of the metro areas and within suburbs. In Springfield, the northwest portion of the City is the site of the most intense commercial development, including "big box" retail outlets. Much of the growth in Greene County is occurring in the extreme western portion of the County in the City of Beavercreek, an eastern suburb of the City of Dayton.

## 4.4 MAJOR EMPLOYERS AND ACTIVITY CENTERS

There are two highly concentrated employment **and** event centers in the Dayton area. The first major employment center is located along I-75, which provides access to downtown Dayton and the headquarters of NCR, several of the region's 11 General Motors plants, the University of Dayton Arena, and the Downtown Convention Center. The Miami Valley is the home to the largest concentration of auto manufacturing/suppliers outside of the Detroit area, and General Motors employs approximately 20,000 people in the study area. Airborne Express and NCR are other large employers for the region.

The most important concentration of employment not located along I-75 is along the Greene / Montgomery County border near the intersection of I-70 with SR-4 and I-675, which is the location of Wright-Patterson Air Force Base (WPAFB). WPAFB is the main logistics agency for the Air Force, and access to and from the base for the shipment of goods is crucial to the national defense. WPAFB is consequently the largest single-site employer in the State of Ohio (from 25,000 to 35,000 employees at any one time) and the Dayton / Springfield area. Wright State University, the Irving J. Nutter Center (a major entertainment and sports complex), private companies which support base activities, and several large trucking companies are also located in this area.

In Clark county, the largest employer is Navistar International, which employs an estimated 10% of the work force in the county. Navistar International has two plants, located in northeast Springfield and in northern Clark county near the county line. Honda of America also employs many people within the study area.

Many industrial, commercial, and recreational facilities are located on the west side of Springfield along routes US-68, US-40 SR-4 and SR-41. The Ohio Army National Guard is located at the intersection of I-70 and SR-41, and the Ohio Air National Guard is located at the Springfield-Beckley Municipal Airport in southern Clark county. Six trucking hubs are located in Clark county along I-70, and two are located along US-68 in the northern part of the county.

In addition to the employment and activity centers, there are many shopping centers within the study area, including four shopping malls:

1. Dayton Mall - located in Miamisburg at the intersection of SR-725 and SR-741

2. Mall at Fairfield Commons - located in Beavercreek at I-675 and North Fairfield Road

3. Salem Mall - located in Trotwood at SR-49 and Shiloh Springs Road

4. Upper Valley Mall - located in Springfield at US-41 and Upper Valley Pike

## 4.5 AIR QUALITY STATUS AND PROGRAMS

On July 5, 1995, the Dayton region was redesignated as a maintenance area for ozone. In previous years, the region had been officially designated as an ozone non-attainment area. The region recently began an automobile inspection / maintenance program called E-Check. E-Check, which is operating in Clark, Greene, and Montgomery Counties, is designed to identify cars that emit high levels of hydrocarbon, nitrogen oxides, and carbon monoxide. Other programs include Stage-2 vapor recovery systems which are operating at the larger gas stations. Vapor recovery pumps draw the gasoline vapors displaced from automobile gas tanks during refueling back into the gas station tanks, thus emitting less gas and conserving fuel. Rideshare programs for carpooling and Park-and-Ride transit stations are also in place.

# 5.0 TRANSPORTATION SYSTEMS AND FACILITIES INVENTORY

## 5.1 OVERVIEW

This Section summarizes the inventory of transportation systems and facilities. More of an "environmental scan" than a true inventory, this activity focused on ITS and related aspects of the transportation system and the types of facilities most affected by, and relevant to, ITS implementation. This summary of the inventory findings is organized by transportation mode.

## 5.2 REGIONAL ROADWAY SYSTEM OVERVIEW

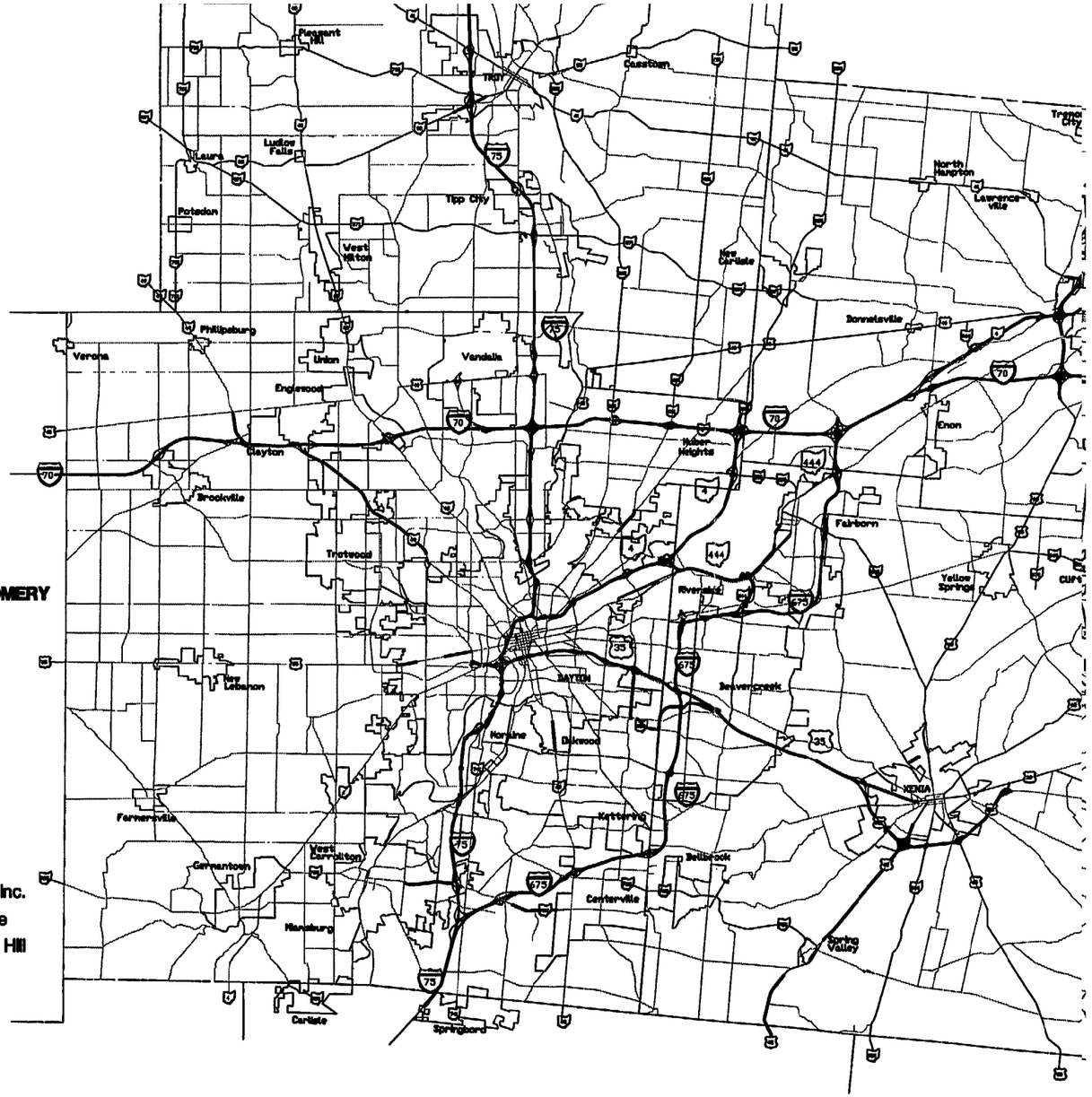
Figure 5-1 illustrates the major roadways within the four county study area. The study area includes both east-west (I-70) and north-south (I-75) interstate facilities which interchange near the center of the four county area, just north of the City of Dayton. In the Dayton metro area, Interstates 70 and I-675 form the northern, eastern and southern portions of a beltway, or bypass, of the City of Dayton. More detailed information on specific study area roadways is presented in Sections 5.3, 5.4 and 6.3.

## 5.3 FREEWAY/INTERSTATE ROADWAYS

### Freeway System Overview

The study area is served by three major interstates (I-70, I-71, and I-75), one secondary interstate (I-675), and 3 US highways (US-40, US-35, and US-68). I-675 is a southeast beltway that connects I-75 on the south with I-70 on the northeast. This interstate is a corridor through Dayton's southern and eastern suburbs and is a main route for vehicles bypassing Dayton and traveling between Cincinnati and Columbus.

In the Dayton/Springfield area, approximately 9 miles of US35 is a limited access freeway beginning west of downtown Dayton (near Gettysburg Avenue) and proceeding east to I-675. The segment of US-35 from I-675 to just west of Xenia, Ohio is a four-lane, limited access divided highway with signalized intersections. US-35 is a commuter route for residents in eastern suburbs and Greene County traveling to downtown Dayton and WPAFB.




MIAMI VALLEY *ITS*

EARLY DEPLOYMENT PLAN

BRW, Inc.
Battelle
CH2M Hill
LJB
TEC

MVRPC
Miami Valley Regional Planning Commission

US-68 is a main route crossing I-70 and running through Greene and Clark Counties. It functions as a limited access freeway facility where it connects the western side of Springfield to I-70 on the south.

SR-4 traverses Montgomery, Greene, and Clark Counties in the study area. In the downtown Dayton area, SR-4 is a 4 lane highway connecting I-75 and I-70 and is heavily utilized during rush hours. SR-4 is also used by commuters to WPAFB and for tourists visiting the U.S. Air Force Museum located adjacent to the base.

Table 5.1 presents the cross section description of the major freeways within the Miami Valley Regional study area, and Table 5.2 presents the lane-miles by county for these freeways.

TABLE 5.1
FREEWAY CROSS SECTIONS

| Freeway | Description |
|---|---|
| I-75 | 6/4 lanes, center median |
| I-70 | 4 lanes, center median |
| I-71 | 4 lanes, center median |
| I-675 | 6/4 lanes, center median |
| US-35 | 4 lanes, center median |
| SR-4 | 4 lanes, center median |
| US-68 | 4 lanes, center median |

Source: *CH2M* Hill *Field Observations August 1996*

**TABLE** 5.2
MILES OF FREEWAY BY COUNTY

| | County | | | | |
|---|---|---|---|---|---|
| **Freeway/Highway** | **Clark** | **Greene** | **Miami** | **Montgomery** | **Total** |
| I-75 | 0.00 | 0.00 | 20.00 | 24.4 | 44.4 |
| I-70 (and airport access) | 29.3 | 0.00 | 0.00 | 25.8 | 55.1 |
| I-71 | 0.00 | 4.08 | 0.00 | 0.00 | 4.08 |
| I-675 (and connector 444a) | 1.5 | 19.99 | 0.00 | 7.4 | 28.89 |
| US-35 (and bypass) | 0.00 | 33.16 | 0.00 | 7.5 | 40.66 |
| SR-4 | 5.7 | 3.0 | 0.00 | 7.0 | 15.7 |
| US 68 | 9.9 | 0.00 | 0.00 | 0.00 | 9.9 |
| Totals: | 46.4 | 60.23 | 20.00 | 72.1 | **198.73** |

*Source: Ohio Department of Transportation, August 1996*

**Inventory of Freeway System ITS and Related Facilities**

With the exception of an Incident Management Plan for I-75 through the City of Dayton, the study area freeway system does not include any of the typical components of freeway management systems. There are no ramp meters, changeable message signs, highway advisory radio, vehicle detection stations, weather detection stations or enhanced signage for motorist reference. The Incident Management Plan includes a number of pre-defined detour routes and manually operated flip-down detour signs along I-75. The system is not frequently used, in part due to the time required to manually deploy the detour signs.

**Major On-Going and Committed Freeway Projects**

The most significant freeway system project is the reconstruction of the I-70/1-75 interchange. The design phase of this project began in late 1996. Construction of the interchange **is** scheduled to begin in 2000 with an estimated cost of $80 to $100 million.

Other major on-going projects include the following:

- Extension of US-35 in Montgomery County (in progress)
- Relocation of SR-49 (upgrading known as the Trotwood Connector) in Montgomery County ($28 million)
- Construction (relocation) of US-35 in Greene County - 4 lane highway from Brickett Road to west of Fayette County Line ($83 million)
- Resurfacing and safety upgrade of US-35 in Greene County from I-675 to west of US-68 ($14 million)

The following projects have been identified by the Ohio Department of Transportation but have not received funding:

- Upgrading intersections to interchanges on US-35 in Greene County from Dayton to Xenia ($16 million)
- ln Montgomery County, adding a lane on SR-725 from Centerville Loop Road to Wilmington Pike ($5 million)
- In Montgomery and Miami Counties, widening SR-49 to 4 lanes from US-40 to Greenville ($56 million)
- In Montgomery County, widening I-70 to 6 lanes between Clark County and SR-48 ($77 million; year 2002)
- In Miami County, widening I-75 to 6 lanes from CR-25A to SR-41 ($27 million; year 2001)

- Construction of the Greater Dayton Beltway/SR-892 (a 4 lane divided highway, designed to Interstate standards, from I-75 near the Montgomery/Warren county line west to SR-4 then north to I-70 near the SR-49 interchange); this beltway would improve access to western Montgomery County, help to balance regional growth patterns, improve traffic flows and congestion, and improve air quality (all components of SR-892 will only be built by end of planning forecast [2015])

## 5.4 ARTERIAL STREETS

The Miami Valley study area contains 52 jurisdictions, many of which are relatively small communities. Arterial roadways, classified as Principal Arterials, Minor Arterials, and Major Collectors, exist in the majority of these areas. Parts of State Route 4, US 35, and US 68 contain freeway sections although these roadways are designated as arterials through most of the study area.

**Traffic Signal Control Equipment and Utilization**

Traffic signal equipment within the study area is controlled by each jurisdiction. As such, the technology varies considerably from location to location. There are electro-mechanical, fixed-time controllers operating in an isolated manner, as well as interconnected solid-state controllers controlled by computerized masters or time-based coordination. Table 5.3 presents the traffic signal systems of the larger jurisdictions in the study area. The total number of signals in the jurisdiction is shown, along with the percentage of signals which operate in a system and the percentage of solid-state, or microprocessor, signals.

The entire Miami Valley area has invested significantly in signal control equipment that provides motorists with travel benefits through efficient system operation and reduced delays. The majority of large jurisdictions maintain a high percentage of microprocessor equipment. Some communities operate interconnected signal systems using simple hardwire. However, many have invested in closed loop systems or time-based coordination. Also, most jurisdictions in the study area are in a continuous process of updating their signal systems and installing new equipment.

Dayton utilizes advanced signal control technology and has operated a central computer system for 18 years to control many of the city's arterial street systems. The exception is the central business district, which operates as a reliable, electro-mechanical, interconnected pre-timed system. Also, Dayton is in the process of upgrading and expanding their signal system using state-of-the-art local controllers operated by a central microprocessor.

The large suburban cities of Kettering, Moraine, Centerville, Miamisburg, and Oakwood and Greene County and Dayton use microprocesser-controlled closed loop signal systems to control traffic. Computerized signal systems have been in place in these areas for as long as 20 years, such as in the case of Kettering and

Moraine. These two cities use closed loop microprocessor-based systems for the control of 95 percent of the signals on their arterial streets.

**TABLE 5.3**
**TRAFFIC SIGNAL SYSTEM SUMMARY**

| Jurisdiction | Total | Percent Interconnected | Percent Microprocessor |
|---|---|---|---|
| **Clark County** | 15 | | |
| New Carlisle | 3 | 0 | 100 |
| ODOT District 7 | 21 | | |
| South Charleston | 3 | | |
| Springfield | 120 | 30 | 59 |
| **Greene County** | 24 | 33 | 71 |
| Bevercreek | 36 | 61 | 100 |
| Bellbrook | 1 | 0 | 0 |
| Fairborn | 32 | 53 | 100 |
| Jamestown | 2 | 0 | 0 |
| Xenia | 39 | 51 | 28 |
| **Miami County** | 3 | 0 | 100 |
| ODOT District 7 | 5 | 40 | 80 |
| Piqua | | | |
| Tipp City | 14 | 0 | 71 |
| Troy | 41 | 61 | 100 |
| West Milton | 2 | 0 | 100 |
| **Montgomery County** | 50 | 38 | 100 |
| Brookville | 3 | 0 | 33 |
| Centerville | 28 | 75 | 100 |
| Dayton | 346 | 90 | 64 |
| Englewood | 10 | 20 | 100 |
| Germantown | 4 | 50 | 100 |

**TABLE 5.3**
**TRAFFIC SIGNAL SYSTEM SUMMARY (CONTINUED)**

| Jurisdiction | Total | Percent Interconnected | Percent Microprocessor |
|---|---|---|---|
| Huber Heights | 25 | 76 | 100 |
| Kettering | 66 | 100 | 100 |
| Miamisburg | 24 | 100 | 100 |
| Moraine | 26 | 100 | 100 |
| New Lebanon | 3 | 0 | 67 |
| Oakwood | 14 | 93 | 86 |
| ODOT District 7 | 57 | 67 | 95 |
| Riverside | 29 | 48 | 97 |
| Trotwood | 22 | 82 | 91 |
| Union | 2 | 0 | 100 |
| Vandalia | 14 | 64 | 93 |
| West Carrollton | 15 | 80 | 93 |

*Source: LJB; municipal, county and state traffic engineering departments, November 1997*

*Timing Plans*

Timing plan updates for the jurisdictions within the study area generally do not follow a schedule. Plans are revised on an as-needed basis, usually to repair problems brought to attention by public complaint or equipment failure/ replacement.

As part of the closed loop systems installed in Dayton, Kettering, Moraine, Centerville, and Greene County the systems are regularly monitored by computer and reviewed by staff. Changes are made as problems are detected.

*Preemption/Priority Systems*

Springfield has an extensive priority operation utilizing the 3M Opticom System. Other scattered local preemption systems for fire/emergency exist, but in most cases these relate only to single intersections or small systems, usually in the vicinity of a fire station or hospital. Most of the signal systems in the area have preempt capability, though it may not be in use.

### *Centralized Control*

Springfield, Dayton's Central Business District (CBD), and Miamisburg's relatively small CBD contain simple systems governed by a clock and limited cycle, split, and offset control. The cities of Dayton, Kettering, Moraine, and Centerville have extensive closed loop systems. Dayton and Miamisburg utilize Monarch central control systems which are operated and monitored continuously by computer.

### *Special Event Plans*

There are no specific special event timing plans used throughout the study area. The closed loop system operators generally implement various school, athletic event, parade, church, and heavy shopping period timing programs.

### Major Ongoing and Committed Traffic Signal Control Projects

Table 5.4 shows the signal projects within the study area with committed funding through 2000 and costing greater than $1 million. The most significant projects are the VMS central signal computer replacement in Dayton and the installation of the Kettering/Moraine traffic signal, fiber-optic cable, and surveillance system.

**TABLE 5.4**
**MAJOR TRAFFIC CONTROL PROJECTS SFY1997-SFY2000**

| county | Project | Description | Cost ($) |
|---|---|---|---|
| Clark | Bechtle Ave. - North of US 40 to I-71 | Traffic Signal Replacement | 1,009,000 |
| | US40 EB & WB Bechtle to Limestone | Traffic Signal Replacement | 1,040,000 |
| Greene | Col. Glenn at N. Fairfield Rd. | Traffic Signal Installation | 1,620,000 |
| | US 68/US 35/Second St. | Signal System Interconnect | 1,294,000 |
| Montgomery | VMS Replacement (Citywide) | Traffic Signal Replacement | 1,080,000 |
| | VMS Replacement (Citywide) | Replacement w/Fiber Optic Cable | 2,000,000 |
| | Kettering/Moraine Traffic Signal System | Replacement w/Fiber Optic Cable | 1,228,000 |

Source: MVRPC Transportation Vision and Long Range Transportation Plan, Adopted July 7,1994

## 5.5 PUBLIC TRANSIT SYSTEMS AND CARPOOLING PROGRAMS

### Miami Valley Regional Transit Authority

The Miami Valley Regional Transit Authority (MVRTA) operates primarily in Montgomery County and provides both fixed-route and demand-responsive transit service. The MVRTA has 420 operators / drivers, 29 fixed routes, and approximately 240 vehicles. Both diesel and electric trolley buses are used. Project Mobility, its ADA paratransit service, currently has 57 vehicles. Twenty-four Park-and-Ride lots, maintained by both the ODOT and the MVRTA, are located throughout the transit service area.

Computer-aided dispatch is utilized by the MVRTA at its main transit office (600 Longworth Street). Automatic vehicle location technology is not currently in place but is slated to be added to the system in the future. Automatic passenger counters are not utilized.

The main transit information center is located in downtown Dayton at the comer of Main and Market streets. Tokens, weekly and monthly passes, schedules, Child / Senior ID **cards,** and general information are provided at the center. MVRTA purchased the American building (Third and Main Streets), which will provide a permanent presence for the MVRTA in the downtown area. Currently, this building holds marketing and planning services for the MVRTA. This hub will be expanded to serve as a passenger waiting area and provide some consumer services.

As part of the Regional Ozone Action Program, on Ozone Action Days (determined by the Regional Air Pollution Control Agency) the MVRTA offers reduced fares of $0.25 on its fixed routes.

Five new park-and-ride / transfer centers are planned to provide parking for express and local bus service, transfer connections between routes, staging areas for ridesharing, and convenient access by bicycles and pedestrians, and eliminate duplication of routes. Construction of two of the new hubs began recently.

### Miami County Transit System

The Miami County Transit System is operated by the Miami County Community Action Council under contract to Miami County. A fleet of 17 vehicles carries approximately 71,000 passengers annually. Demand-responsive service is dispatched manually and provided throughout the County (except for trips originating in the City of Piqua) Inter-county connections can be made with the. MVRTA in Vandalia, Union, and Huber Heights. While there is no minimum response time required, the transit system prefers as much notice to be given as possible for trip requests, particularly when customers are traveling between cities. The vision and long range plan assume that the amount of service, fleet, costs and revenues will remain approximately constant until 2015.

**City of Piqua Transit System**

The City of Piqua Transit System is also operated by the Miami County Community Action Council under contract to the City of Piqua. A fleet of 8 vehicles carries approximately 51,000 passengers annually. Demand-responsive service is dispatched manually and provided within a two-mile radius of the City limits and to Dettmer Hospital. There is no minimum trip reservation tune for demand responsive service. The vision and long range plan assume that the amount of service, fleet, costs, and revenues will remain approximately constant until 1998, and then the service levels and related costs will increase 15% beginning in 1999 due to an increase in night and weekend service.

**Springfield City Area Transit System**

The Springfield City Area Transit (SCAT) system is operated by the Springfield Bux company. A total of 15 buses provided service to over 483,000 riders in 1995. The SCAT system operates from 6:40 a.m. to 5:40 p.m., Monday through Friday except on major holidays. All fixed-service routes (a total of 12) originate from the Market Square Bus Center in downtown Springfield. Buses are equipped with 2-way radios and dispatchers are in continuous contact with the bus operators and their routes. Every street comer along a bus route functions as a stop.

ADA paratransit service is available during normal bus service hours. Paratransit service must be scheduled by 5:00 p.m. the day before the requested trip. Additionally, fixed-route and demand responsive transportation services in Springfield are provided by taxi companies, private organizations, and social service agencies.

**Rideshare**

RIDESHARE is a free computer matching service which links commuters together with others who would like to carpool / vanpool to work or college. The Dayton area program, which is run by the MVRPC, was established in 1979 and is funded in part by the ODOT and the FHWA. The Springfield area program is run by the CCSTCC.

Approximately 4,000 commuters are registered in the database, which is one of the larger ones in Ohio. Home addresses, work locations, and hours are entered. into a computer to generate matchlists. When commuters cross jurisdictional boundaries, the Dayton, Springfield, Columbus, and Cincinnati RIDESHARE offices coordinate to find potential matches.

A "Guaranteed Ride Home" service was established in 1994 as a contingency for ridesharers who might need to get home in case of an emergency or if they need to work late unexpectedly. Commuters can take a taxicab ride home or to the site of an emergency, pay the fare, and have the driver sign the receipt. Within two weeks of submitting the receipt to the RIDESHARE office, 80% of the total cost of the ride is reimbursed.

## 5.6 AIRPORTS

The study area is served by 10 air transportation facilities: Dayton International Airport (DIA) Dayton Wright Brothers Airport, Brookville Airport, Dahio Airport, Greene County Airport, Moraine Airpark, PhiIlipsburg-Myers Airport, Piqua Airport, the Springfield-Beckley Municipal Airport, and the Mad River Airport. The Dayton Wright Brothers Airport (in southern Montgomery County), was originally a private airport known as the Montgomery County Airport. In addition to these civilian airports, a military facility - Wright-Patterson Air Force Base - is located ten miles northeast of Dayton.

The DIA provides commercial passenger service for the study area. The DIA is the only airport with scheduled commercial carrier flights and contains 3 runways with a maximum length of 10,900 feet. In 1995, DIA processed 2.2 million passengers, 100 daily departures, 149,016 operations (passenger and cargo), and approximately 692,000 tons of cargo. It is served by 15 commercial passenger airlines. Emery Worldwide and the Regional Van Sort Facility (for Federal Express) are major cargo transporters at the DIA.

## 5.7 COMMERCIAL VEHICLE OPERATIONS

Commercial trucking activity represents an important component of regional travel in the study area. Commercial vehicle activity is affected by the following influences:

- the proximity of the major shipping routes of I-70 and I-75 and the presence of several major trucking depots;
- the presence of major manufacturing facilities, including automobile parts producers; and
- the influence of Wright-Patterson Air Force Base, the logistics center for the United States Air Force.

There are no commercial vehicle weigh station or inspection facilities within the study area. For this reason, the State of Ohio's participation in the Advantage I-75 Program does not impact the study area directly. The Advantage I-75 program allows trucks traveling on I-75 between Florida and the Canadian border to' automate licensing, weight checks and permitting.

## 5.8 REGIONAL TRAVELER INFORMATION SOURCES

**Commercial Traffic Information Providers**

Traffic Watch, Inc., located in downtown Dayton operates in the Miami Valley area. Traffic Watch provides local traffic information to the majority of Dayton radio and TV stations for their on-air reports. The City of Springfield does not have its own TV stations and the majority of its radio stations do only provide general road condition reports during inclement weather.

Most of the Miami Valley radio and TV stations report on road conditions during inclement weather - many obtain information directly from the Sheriff. WTUE (radio) has its own morning traffic watch which includes mobile field reconnaissance and reports. WMMX (radio) receives almost all its information from its listeners (motorists with cellular phones dial *1077 to report traffic accidents and problems). WMMX provides its information to the WDTN (TV channel 2) morning news.

Public Traffic Information Sources

***Ohio Department of Transportation***

Each of ODOT's 12 district offices and their central office in Columbus has a public information officer who is responsible for disseminating information to the public and concerned agencies on a regular basis. ODOT uses a computer bulletin system (MMS system) to link all offices together with construction data that is updated daily or whenever conditions change. A monthly version of the construction report is distributed to interested parties, including the Highway Patrol, Police and Sheriff offices, trucking and other businesses, and AAA offices. In addition, the public information officers communicate with the media and other parties on a regular basis through press release, TV / radio interviews, and phone calls.

ODOT has construction information on its intemet web page, and District 7 is currently constructing a section on their intemet web page for specific road construction information as well. Residents of Montgomery, Clark, and Miami counties can call their respective ODOT county garages or the District 7 office for road condition / snow removal.

***Tourist Information Radio***

Tourist information radio on the Ah4 dial operates in the Dayton area and is maintained by the Dayton Convention and Visitors Bureau in downtown Dayton. The radio is usually used as a forum to provide information on area attraction, events, and festivals and is usually only updated on a monthly basis. Pending the restrictions on their licensing permit through the FCC, however, the bureau would consider using the radio for traveler transportation information as well.

***Weather Data Collection***

Pavement sensors and other types of roadway/roadside weather data systems are not currently utilized within the study area.

## 5.9 RAIL

According to information from the 1994 Ohio Rail Map, there are three Class I (national) railways in the study area:

1. Consolidated Rail Corporation (Conrail)
2. CSX Corporation
3. Canadian National North America/Grand Trunk Western Railroad (GTW; feeder)

There is one Class III (short-line) railway, the Indiana & Ohio Central Railroad (IOCR).

Major rail freight terminals are located at the General Motors facilities on Dryden Road and Needmore Roads in Dayton. In Clark County, major rail terminals are located at the Springfield Yard and Urbana Industrial.

AMTRAK serves southwestern Ohio along an east-west corridor through Cincinnati but does not currently service the study area. Ohio's long term goal is to develop conventional rail passenger service that links Ohio's eight major urban areas, including Dayton.

## 5.10 INTERCITY BUS

Greyhound Bus Lines operates terminals in downtown Dayton and Springfield. Both cities are also served by many charter and rental bus lines.

# 6.0 DEFICIENCIES ASSESSMENT

## 6.1 OVERVIEW

Following the inventory of ITS relevant regional transportation systems and facilities, specific transportation system deficiencies were identified. Later, based on the deficiencies assessment and other inputs, specific ITS opportunities will be identified, the first step in the process to develop ITS project recommendations.

The deficiencies identification process was two-pronged, featuring both qualitative and quantitative activities. This section presents a summary of these efforts along with the summary of regional transportation system deficienincies and ITS opportunities that will guide project recommendations.

## 6.2 QUALITATIVE ASSESSMENT ACTIVITIES

The qualitative assessment of regional problems, issues and perspectives included a widely distributed project newsletter, interviews with local transportation agency staff, a regional survey of transportation stakeholders, and a public Outreach Workshop. These efforts served the dual purposes of identifying issues and problems and, at the same time, promoting awareness, understanding and support for the Early Deployment Planning effort.

### Newsletters

Three project newsletters will be mailed to approximately 400 study area transportation stakeholders representing a wide range of interests. The newsletters educate and solicit input and represent one of the tools of the qualitative assessment. In October 1996, the first Miami Valley ITS Newsletter was sent out to inform potential stakeholders of the ITS Early Deployment Plan development process and to invite them to the first of two Outreach Workshops, described below. A copy of this newsletter is included in the appendix.

### User Needs Survey

Over 200 surveys were distributed to transportation systems users and operators. Individuals receiving the survey represent motorized modes of transportation including transit, highways, trucking, aviation, and intercity bus. Thirty-seven (37) returned surveys resulted in a 19 percent response rate. A copy of the survey is included in the Appendix.

The survey addressed problem areas, problem area suggestions, user needs, and ITS project ideas. Survey results are presented in Tables 6.1 through 6.6. Table 6.1 shows the raw scoring of the problem area ranking exercise and indicates that the number of responses varied significantly by problem area. Table 6.2 shows the tabulated scores for this activity. As shown in Table 6.2, when asked to rank a pre-defined list of potential problems, highway congestion, highway safety and commercial vehicle hazardous materials routing were ranked as the most significant.

Table 6.3 shows the results of the "fill in the blank" problem identification portion of the survey. As indicated, highway congestion, inadequate/unsafe roadway design, and lack of signal timing coordination were the most frequently reported problems. Lack of traveler information was also identified as a problem.

Table 6.4 shows the raw scoring of the user needs portion of the survey, where respondents were asked to rate the priority of the 30 ITS User Services identified by the United States Department of Transportation. As shown in Table 6.5, hazardous materials incident response, traffic control and incident management scored highest.

Table 6.6 lists the ITS project suggestions which were identified by survey respondents. As indicated, the suggestions covered a wide range of ITS services and include many of the specific applications which are being deployed successfully nationally.

**Stakeholder Interviews**

Representatives of the following 23 area public and private transportation organizations were interviewed between October 2, 1996 and October 30, 1996:

- City of Beavercreek
- Clark County Engineering
- CCSTCC
- Dayton International Airport
- City of Dayton Fire Department
- City of Dayton Police Department
- City of Dayton Traffic Engineering
- Federal Highway Administration
- Greene County Engineering
- Jet Express
- City of Kettering
- Miami Valley Regional Transit Authority
- Montgomery County
- City of Moraine
- ODOT (Central)
- ODOT (District 7)
- ODOT (District 8)
- ODOT (CVO)
- Ohio Trucking Association
- Ohio Public Utilities Commission .
- City of Springfield
- Springfield Bus Company
- Wright State University

The purpose of the interviews was to identify agency goals and responsibilities, transportation problems in the Miami Valley, ITS technologies already in use, ITS funded projects, and to discuss projects or suggestions that might improve the Miami Valley transportation system. Interviews provided an opportunity to solicit detailed comments from agency representatives that might not be expressed

**TABLE 6.1**
**USER NEEDS SURVEY**
**PROBLEM AREAS RATING DATA**

| Problem Area | | Ranking 1 | 2 | 3 | 4 | 5 | No Response |
|---|---|---|---|---|---|---|---|
| **Highway** | **Congestion** | 1 | **13** | **12** | **6** | **2** | **3** |
| | **Safety** | **2** | **12** | 11 | **6** | **3** | **3** |
| | Travel Tune | **6** | **15** | 10 | **2** | **0** | **4** |
| | Travel Time Information | **11** | **7** | **7** | **5** | 1 | **6** |
| | Road and Weather Condition Info. | 10 | **11** | **4** | **6** | 1 | **5** |
| | Access | 8 | **11** | **6** | **7** | 1 | **4** |
| | Noise | 11 | **15** | **3** | **2** | 0 | **6** |
| | Air Pollution | **2** | **18** | **5** | **7** | 0 | **5** |
| | Car Pooling Coordination | **11** | **6** | **4** | **2** | **2** | **12** |
| | Emergency Response | **7** | **9** | **6** | **5** | 1 | **9** |
| | Personal Security | **12** | **10** | **2** | **3** | 0 | 10 |
| **Local Bus** | Travel Time | **0** | **6** | **4** | **1** | 0 | **26** |
| Systems | Safety/Security | **1** | **6** | **1** | **2** | 0 | **27** |
| | Status Information | **3** | **0** | **5** | **3** | 0 | **26** |
| | Schedule and Route Information | **5** | **2** | **3** | **2** | 0 | **25** |
| | Scheduling | **4** | **3** | **3** | **2** | 0 | **25** |
| | Fare Collection | **8** | **2** | **0** | **0** | 0 | **27** |
| | Fleet Management | **5** | **2** | **1** | **0** | 0 | **29** |
| | Operations | **4** | **3** | **1** | **0** | 0 | **29** |
| **Intercity** | Travel Tune | **1** | **4** | **1** | **0** | 1 | **30** |
| **Bus/Rail** | **Safety/Security** | **1** | **2** | **3** | **1** | 0 | **30** |
| | Status Information | **1** | **4** | **0** | **1** | 0 | **31** |
| | Schedule and Route Information | **2** | **4** | **1** | **1** | 0 | **29** |
| | Scheduling | **2** | **2** | **0** | **0** | 1 | **32** |
| | Operations | **1** | **3** | **0** | **0** | 0 | **33** |
| | Fleet Management | **1** | **3** | **0** | **0** | 0 | **33** |
| **Commercial** | **Safety** Inspections | **3** | **5** | **7** | **1** | 0 | **21** |
| **Vehicles** | Weight Checking | **2** | **5** | **6** | **2** | 0 | **22** |
| | Regulations | **3** | **5** | **6** | **2** | 0 | **21** |
| | Hazardous Material Response | **5** | **5** | **3** | **4** | **2** | **18** |
| | Hazardous Material Routing | **3** | **6** | **4** | **4** | **2** | **18** |
| | Fleet Routing | **5** | **5** | **4** | **1** | **0** | **22** |

**Response Categories:**
**1** = Not a Problem
2 = Occasional Problem
3 = General Problem
4 = Significant Problem
5 = Very Significant Problem

*Source: BRW, Inc., May 1997*

**TABLE 6.2**
**USER NEEDS SURVEY**
**PROBLEM AREA RATINGS**

| Problem Area | Problem | Average Rating | Number of Responses 1 |
|---|---|---|---|
| Highway | Safety | **2.9** | **34** |
| Highway | Congestion | **2.9** | 34 |
| Commercial Vehicles | Hazardous Material Routing | 2.8 | **19** |
| Local Bus Systems | Status Information | 2.7 | **11** |
| Commercial Vehicles | Hazardous Material Response | 2.6 | **19** |
| Intercity Bus/Rail | Safety/Security | 2.6 | 7 |
| Highway | Air Pollution | 2.5 | 32 |
| Highway | Access | 2.5 | 33 |
| Local Bus Systems | Travel Time | 2.5 | 11 |
| Commercial Vehicles | Weight Checking | 2.5 | 15 |
| Commercial Vehicles | Regulations | 2.4 | 16 |
| Commercial Vehicles | Safety Inspections | 2.4 | 16 |
| Highway | Emergency Response | 2.4 | 28 |
| Local Bus Systems | Safety/Security | 2.4 | 10 |
| Intercity Bus/Rail | Travel Time | 2.4 | 7 |
| Local Bus Systems | Scheduling and Route Information | 2.3 | 12 |
| Highway | Road and Weather Condition Info. | 2.3 | 32 |
| Highway | Travel Time Information | 2.3 | 31 |
| Highway | Travel Time | 2.2 | 33 |
| Local Bus Systems | Scheduling | 2.2 | 12 |
| Intercity Bus/Rail | Status Information | 2.2 | 6 |
| Intercity Bus/Rail | Scheduling | 2.2 | 5 |
| Highway | Car Pooling Coordination | 2.1 | 25 |
| Commercial Vehicles | Fleet Routing | 2.1 | 15 |
| Intercity Bus/Rail | Schedule and Route Information | 2.1 | 8 |
| Highway | Personal Security | **1.9** | 27 |
| Highway | Noise | **1.9** | 31 |
| Intercity Bus/Rail | Operations | **1.8** | 4 |
| Intercity Bus/Rail | Fleet Management | **1.8** | 4 |
| Local Bus Systems | Operations | 1.6 | 8 |
| Local Bus Systems | Fleet Management | 1.5 | 8 |
| Local Bus Systems | Fare Collection | 1.2 | 10 |

**1 Out of** 37 **surveys returned**

Rating Categories:
1 = Not a Problem
2 = Occasional Problem
3 = General Problem
4 = Significant Problem
5 = Very Significant Problem

*Source: BRW, Inc., May 1997*

**TABLE 6.3**
**USER NEEDS SURVEY**
**TOP FIVE PROBLEMS FREQUENCY OF RESPONSE**

| Area | Problem | Frequency |
|---|---|---|
| Highway | Congestion | 20 |
| Highway | Inadequate/Unsafe Roadway Design | 12 |
| Highway | Lack of Signal Timing Coordination | 7 |
| Highway | Traveler Information | 6 |
| Highway | Incident Management/Emergency Response | 6 |
| Highway | Access Control | 5 |
| Transit | Insufficient Transit Service | 5 |
| Highway | Excessive Speed | 4 |
| Highway | Road Construction Management/Coordination | 3 |
| Highway | Additional Width/Lanes Needed | 3 |
| Highway | Inadequate Snow Removal | 2 |
| Highway | No Park and Ride Options | 2 |
| Institution | Overdependence on Automobiles, Subsidized Automobile Use | 2 |
| Highway | Construction Caused Congestion and Accidents | 2 |
| Transit | Alternative Transportation Option (Foot, Bicycle or Transit) | 2 |
| Institution | Licensing Standards for Drivers Are Too Low, More Education Needed | 2 |
| Highway | Capacity Constraints | 2 |
| Highway | Lack of Alternative Routes | 2 |
| Commercial | Truck Traffic | 2 |
| Highway | Interchange Needed | 1 |
| Highway | Lack of Traffic Signals | 1 |
| Transit | Lack of Options for Intercity Commercial Aviation Service | 1 |
| Highway | Lack of Protected Left Turns | 1 |
| Transit | Lack of Light Rail to Airport | 1 |
| Highway | Lack of Routes to West Dayton | 1 |
| Commercial | Safe and Efficient Movement of Trucks | 1 |
| Highway | Too Many Traffic Signals | 1 |
| Highway | Police Pursuits, Technology to Shut Engines of Fleeing Cars | 1 |
| Highway | Weather Advisory for Motorists | 1 |
| Highway | Varying Speed Limits | 1 |
| Highway | Cruising on Main Street | 1 |
| Transit | Alternative Transportation Information | 1 |
| Institution | Intermodal Coordination | 1 |
| Highway | Maintaining Ozone Attainment Status | 1 |
| Highway | Frequent Lane Changes Required to Go Downtown | 1 |
| Highway | Identification of High Hazard Crash Locations | 1 |
| Institution | Need to Plan Ahead of Development | 1 |
| Highway | Maintaining Existing Infrastructure | 1 |
| Highway | Lack of Emergency (Incident) Information System | 1 |
| Transit | Lack of Public Transit Ridership, Need a Safer Transit Environment | 1 |
| Transit | Intercity Rail | 1 |
| Highway | Congestion Pricing | 1 |
| Highway | Problem Areas on Interstate 75 | 1 |

*Source: BRW, Inc., May 1997*

**TABLE 6.4**
**USER NEEDS SURVEY**
**USER NEEDS PRIORITIES DATA**

| User Service | Ranking 1 | 2 | 3 | 4 | 5 | No Response |
|---|---|---|---|---|---|---|
| Highway-Railroad Intersection | 2 | 3 | 14 | 6 | 1 | 11 |
| TRAVEL AND TRAFFIC MANAGEMENT | | | | | | |
| Pre-Trip Travel Information | 3 | 10 | 16 | 4 | 1 | 3 |
| En-Route Driver Information | 4 | 5 | 14 | 8 | 2 | 4 |
| Route Guidance | 3 | 4 | 16 | 8 | 2 | 4 |
| Ride Matching and Reservation | 7 | 7 | 14 | 5 | 1 | 3 |
| Traveler Services Information | 7 | 11 | 10 | 4 | 0 | 5 |
| Traffic Control | 0 | 0 | 6 | 14 | 13 | 4 |
| Incident Management | 0 | 2 | 5 | 15 | 11 | 4 |
| Travel Demand Management | 2 | 4 | 15 | 10 | 4 | 2 |
| Emissions Testing and Mitigation | 6 | 7 | 12 | 3 | 6 | 3 |
| ELECTRONIC PAYMENT SERVICES | | | | | | |
| Electronic Payment Services | 8 | 13 | 3 | 2 | 2 | 9 |
| EMERGENCY MANAGEMENT SERVICES | | | | | | |
| Emergency Notification and Personal Security | 0 | 2 | 10 | 14 | 9 | 2 |
| Emergency Vehicle Management | 0 | 1 | 9 | 12 | 12 | 3 |
| PUBLIC TRANSPORTATION MANAGEMENT | | | | | | |
| Public Transportation Management | 2 | 6 | 15 | 6 | 2 | 6 |
| En-Route Transit Information | 3 | 13 | 11 | 3 | 1 | 6 |
| Personalized Public Transit | 4 | 5 | 16 | 5 | 2 | 5 |
| Public Travel Safety | 2 | 2 | 17 | 8 | 4 | 4 |
| COMMERCIAL VEHICLE SERVICES | | | | | | |
| Commercial Vehicle Electronic Clearance | 7 | 11 | 4 | 3 | 2 | 10 |
| Automated Roadside Safety Inspections | 3 | 8 | 8 | 8 | 1 | 9 |
| On-Board Safety Monitoring | 3 | 6 | 7 | 8 | 3 | 10 |
| Commercial Vehicle Administrative Processes | 6 | 8 | 8 | 4 | 1 | 10 |
| Hazardous Material Incident Response | 0 | 0 | 4 | 13 | 15 | 5 |
| Freight Mobility | 3 | 7 | 8 | 7 | 2 | 10 |
| ADVANCED VEHICLE SAFETY SYSTEMS | | | | | | |
| Longitudinal Collision Avoidance | 2 | 5 | 7 | 9 | 6 | 8 |
| Lateral Collision Avoidance | 3 | 4 | 7 | 11 | 4 | 8 |
| Intersection Collision Avoidance | 2 | 3 | 8 | 10 | 6 | 8 |
| Vision Enhancement for Crash Avoidance | 2 | 2 | 11 | 10 | 5 | 7 |
| Pre-Crash Restraint Deployment | 2 | 3 | 12 | 8 | 4 | 8 |
| Safety Readiness | 4 | 4 | 7 | 7 | 8 | 7 |
| Automated Vehicle Operations | 11 | 8 | 9 | 1 | 1 | 7 |

Response Categories:
1 = Very Low Priority
2 = Low Priority
3 = Average Priority
4 = High Priority
5 = Very High Priority
*Source: BRW Inc., May 2997*

## TABLE 6.5
## USER NEEDS SURVEY
## USER NEED PRIORITIES

| User Need Area | User Need | Average Priority | Number of Responses 1 |
|---|---|---|---|
| Commercial Vehicle Services | Hazardous Material Incident Response | 4.3 | 32 |
| Travel and Traffic Management | Traffic Control | 4.2 | 33 |
| Travel and Traffic Management | Incident Management | 4.1 | 33 |
| Emergency Management Services | Emergency Vehicle Management | 4.0 | 34 |
| Emergency Management Services | Emergency Notification and Personal Security | 3.9 | 35 |
| Advanced Vehicle Safety Systems | Intersection Collision Avoidance | 3.5 | 29 |
| Advanced Vehicle Safety Systems | Vision Enhancement for Crash Avoidance | 3.5 | 30 |
| Advanced Vehicle Safety Systems | Longitudinal Collision Avoidance | 3.4 | 29 |
| Advanced Vehicle Safety Systems | Safety Readiness | 3.4 | 30 |
| Travel and Traffic Management | Travel Demand Management | 3.3 | 35 |
| Public Transportation Management | Public Travel Safety | 3.3 | 33 |
| Advanced Vehicle Safety Systems | Pre-Crash Restraint Deployment | 3.3 | 29 |
| Advanced Vehicle Safety Systems | Lateral Collision Avoidance | 3.3 | 29 |
| Commercial Vehicle Services | On-Board Safety Monitoring | 3.1 | 27 |
| Travel and Traffic Management | Route Guidance | 3.1 | 33 |
| Travel and Traffic Management | En-Route Driver Information | 3.0 | 33 |
| Public Transportation Management | Public Transportation Management | 3.0 | 31 |
| | Highway-Railroad Intersection | 3.0 | 26 |
| Travel and Traffic Management | Emissions Testing and Mitigation | 2.9 | 34 |
| Public Transportation Management | Personalized Public Transit | 2.9 | 32 |
| Commercial Vehicle Services | Automated Roadside Safety Inspections | 2.9 | 28 |
| Commercial Vehicle Services | Freight Mobility | 2.9 | 27 |
| Travel and Traffic Management | Pm-Trip Travel Information | 2.7 | 34 |
| Travel and Traffic Management | Ride Matching and Reservation | 2.4 | 34 |
| Public Transportation Management | En-Route Transit Information | 2.5 | 31 |
| Commercial Vehicle Services | Commercial Vehicle Administrative Processes | 2.5 | 27 |
| Travel and Traffic Management | Traveler Services Information | 2.3 | 34 |
| Commercial Vehicle Services | Commercial Vehicle Electronic Clearance | 2.3 | 27 |
| Electronic Payment Services | Electronic Payment Services | 2.2 | 28 |
| Advanced Vehicle Safety Systems | Automated Vehicle Operations | 2.1 | 30 |

**l Out of 37 surveys returned**

**Rating Categories:**
1 = Very Low Priority
2 = Low Priority
3 = Average Priority
4 = High Priority
5 = Very High Priority

*Source: BRW, Inc., May 1997*

**TABLE 6.6**
**USER NEEDS SURVEY**
**ITS PROJECT/PROGRAM IDEAS**

| Category | Idea/Suggestion |
|---|---|
| System Congestion | Traffic Signal Coordination |
| | Freeway Management System |
| | Motorist Information |
| | Freeway Surveillance |
| | Variable Message Signs |
| | Alternate Route Messages |
| | Congestion Management |
| | Establish Park and Ride |
| | En-route Incident Information |
| | Highway Advisory Radio-Real Time Information |
| | Closed Circuit Television and Vehicle Detection Equipment |
| | Additional Lanes |
| | Remote Monitoring of Traffic Signal Operation |
| Incident Management | Incident Management System |
| | Accident Avoidance Systems in Vehicles |
| | Video Surveillance (Photo radar) at Frequent Crash Areas |
| | More Emergency Response Staff Training |
| | Freeway Incident Information System |
| | Cellular Caller Identification |
| | Enhance Area-Wide Snow Removal Capability |
| Transit | Develop Suburban Transit |
| | Expand Transit to out of County Suburbs |
| | Exploration of Commuter Rail System |
| | ITS Transit Projects |
| | ITS Demand-Responsive Transit Projects |
| | Improve Multi-Modalism |
| | Safer Transit Environment |
| Aviation | Expand/Market Dayton Airport Operations |
| Highway Engineering | Additional protected left turn lanes |
| | Improve I-75/SR 4 Intersection |
| | Access Management |
| | Reconstruction of Accident Prone Sections of Highway |
| | Bridge Deicing System |
| Commercial Vehicle Operations | Use ITS for CVO Management |
| | Hazardous Material Identification |
| Trip Planning | Traveler Information via Radio and Computer |
| | Road Construction Information |
| Standards | Adopt State Standards for Location Identification |
| | Ensure Connectability with other State/Local Systems |

*Source: BRW, Inc., May 1997*

through the other outreach efforts such as the surveys and workshops. Summaries of the individual interviews are included in the Appendix.

As shown in Table 6.7, the three (3) most frequently reported problems included traffic congestion, accidents/incidents and inadequate/poor roadway design. Funding and interagency/interjurisdictional issues were also identified as important. Table 6.8 identifies the transportation solutions proposed by interviewees.

**Outreach Workshop #1**

Thirty-eight (38) people attended the Outreach Workshop held on November 7, 1996. Workshop attendees included the members of the project Policy and Technical Committees as well as interested area transportation stakeholders. Over 20 different organizations were represented at the workshop, including state, regional and local governments as well as several private sector organizations, including trucking, taxi cab and real estate firms. The purpose of the workshop was to explain the Early Deployment Plan project and to solicit input on transportation problems and potential ITS solutions.

In an effort to identity problems and potential solutions, workshop attendees were divided into four discussion groups based on their transportation interests and backgrounds: Transit, Highway, Incident Management/Institutional Issues and Commercial Vehicle Operations. In the breakout session the groups listed obstacles, problems, and trends interfering with the Miami Valley ITS vision and proposed solutions to overcome those obstacles. A high level summary of the problems and potential solutions identified at the workshop are shown in Tables 6.9 and 6.10.

**Committee Needs Identification and Prioritization: The Workshop Intensive**

The culmination of the qualitative portion of the deficiencies assessment was the Workshop Intensive held on January 28 and 29, 1997. The Workshop was attended by the project Policy and Technical Committees. The results of all of the previous qualitative assessment activities were summarized and a number of interactive activities were conducted to identify a final, subjective assessment of regional problems and ITS priorities.

Thirty-five (35) people attended one or both days of the two-day workshop. Organizations represented at the workshop include the following:

- City of Beavercreek
- Butler Township
- City of Centerville
- Clark County Transportation Coordinating Committee
- City of Dayton
- City of Fairborn
- City of Huber Heights
- City of Kettering

## TABLE 6.7
## AGENCY INTERVIEWS
## REPORTED PROBLEM AREAS

| Frequency Cited | Problem Area |
|---|---|
| 11 | Traffic Congestion |
| 8 | Accidents/Incidents |
| 7 | Inadequate/Poor Roadway Design |
| 5 | Funding |
| 4 | Inadequate Signage/Traveler Information |
| 4 | Conflicting Agency/Jurisdictional Priorities & "Turf" Issues |
| 4 | Lack of Detour/Rerouting Options |
| 4 | Impacts of Detouring Traffic |
| 2 | Low Transit Ridership |
| 2 | Driver Behavior |
| 2 | Railroad Crossing Delays |
| 2 | Access to Incidents/Emergency Vehicle Safety |
| 2 | Transit Not Suburb-Oriented |
| 2 | Coordination Among Commercial Vehicle Regulatory & Enforcement Agencies |
| 1 | Coordination on Construction/Detours |
| 1 | Road Construction |
| 1 | Inadequate Rest Stop/Sleeping Locations for Commercial Vehicle Drivers |
| 1 | Commercial Vehicle Safety Inspections (Delays, Inadequate Facilities) |
| 1 | Accidents |
| 1 | Interstate On-Ramps/Merging & Weaving Areas |
| 1 | Inadequate Staff Resources |
| 1 | Access Control (too many driveways) |
| 1 | Inadequate Commercial Vehicle Airport Access |
| 1 | Heavy Volume and Unreliability of Cellular Incident Phone Calls |
| 1 | Work Zone Safety |
| 1 | Abundant Parking (Deterrent to Transit) |
| 1 | Room for Bicycles, Packages, Etc. on Transit Vehicles |
| 1 | Transit Equipment Procurement (Dwindling Number of Suppliers) |
| 1 | Difficulty in Implementing Non-Mandated Commercial Vehicle Programs |
| 1 | Inadequate Regional Coordination/Cooperation of Traffic Signal Efforts |
| 1 | Institutional Issues in Integrating ODOT Interstate Signals into Local Systems |
| 1 | Lack of Support for Fixed Route Transit in Greene County |
| 1 | Lack of Enthusiasm Among Commercial Vehicle Participants |
| 1 | Lack of Qualified Commercial Vehicle Operators |
| 1 | High Commercial Vehicle Fuel Taxes |
| 1 | Size and Complexity of Commercial Vehicle Regulatory Databases |

***Source: BRW, Inc., May 1997***

**TABLE 6.8**
**AGENCY INTERVIEWS**
**SUGGESTED SOLUTIONS**

**Commercial Vehicle Operations**

- Separate, grade-separated facilities for commercial vehicles
- Coordination of commercial vehicle databases
- Automated hazardous materials enforcement
- Tie-ins with the Advantage I-75 project

**Traveler Information**

- Highway advisory radio
- Traffic information on existing agency Internet sites
- Traveler information for construction and detours
- Traveler information at park-n-ride lots
- Improved signage/traveler information for the Nutter Center
- Changeable message signs

**Freeway Management**

- Pm-arranged incident detour plans
- Dedicated incident reporting hotline
- A regional traffic management center
- Regional emergency communications center and common communications system
- Pavement/weather sensing stations

**Traffic Signal Systems**

- Improve traffic flow along arterial street detour routes
- Regional traffic signal coordination/cooperation efforts

**Transit**

- "Smart" transit to better serve suburban/neighborhood trips
- Automatic vehicle location for transit vehicles
- Active transit station signs

**Other**

- Advanced warning for the presence of trains at at-grade rail crossings
- Automation of existing permanent traffic counters
- Transponders on taxi cabs to allow automating counting and billing for airport use
- Electronic debit card system for airport parking

***Source: BRW, Inc., May 1997***

**TABLE 6.9**
**OUTREACH WORKSHOP**
**REPORTED PROBLEM AREAS**

| | |
|---|---|
| ***Highest Frequency*** | • Inadequate Cooperation and Coordination (among modes, organizations and services) |
| | • Legal / Institutional Issues (liability, legislated responsibilities, etc.) |
| *Medium Frequency* | • Inadequate Information (travelers and operators) |
| | • Funding |
| | • Congestion |
| | • Incidents |
| | • Standardization / Compatibility |
| | • Private Sector Costs |
| *Low Frequency* | • Driver Resistance |
| | • Inefficiency |
| | • Senior / Disabled Access |
| | • Emergency Vehicle Access |

*Source: BRW, Inc., May 1997*

**TABLE 6.10**
**OUTREACH WORKSHOP**
**SUGGESTED SOLUTIONS**

| | |
|---|---|
| ***Incidents*** | • **Incident Response**<br>• **Advanced Work Zone Traffic Control**<br>• **Freeway Management** |
| ***Coordination/Cooperation*** | • **Training**<br>• **Education**<br>• **Political/Legislative Action** |
| ***Traveler Information*** | • **Kiosks**<br>• **Automated Phone Systems**<br>• **Real-Time Data** |
| ***Funding*** | • **Identify Dedicated Source(s)**<br>• **State Participation** |

*Source: BRW, Inc., May 1997*

- Federal Highway Administration
- Miami Valley Regional Planning Commission
- Miami County
- Montgomery County
- Ohio Department of Transportation - Central Office
- Ohio Department of Transportation - District 7
- Miami Valley Regional Transit Authority
- City of Springfield
- City of Troy
- City Xenia
- The project consulting team:
  - BRW, Inc.
  - Battelle Memorial Institute
  - CH2MHill
  - LJB
  - Dick Braun (Expert Panelist)
  - Ron Fisher (Expert Panelist)
  - Jerry Pittenger (Expert Panelist)

***Problem Prioritization***

Utilizing the same list of predefined problem areas that was included in the User Needs Survey, Workshop participants individually scored area transportation problems. The individual scores were reviewed and a second round of voting was conducted. Table 6.11 presents the results of both votes.

***Needs Prioritization***

Workshop attendees performed a similar ranking of the 30 lTS User Services. The results are shown in Table 6.12.

***Identification of Overriding Factors***

Before turning to the consideration of potential ITS projects to address identified problems and to implement the high priority user services, workshop participants developed a list of Overriding Factors. These factors loosely define the characteristics of preferred projects and will help guide all subsequent project development activities. The following working list was identified:

- Reflects a Region-Wide Perspective
- Addresses Safety
- Funding/Sponsorship Available
- Serves Many
- Highly Visibility
- "Early Winner"
- Accepted by Users
- Acceptable Risk-to-Benefit Ratio
- Ease of Deployment
- Maximizes Resources
- Acceptable Operating/Maintenance Costs
- Marketable
- Recognizes and Takes Advantage of the Unique Features of the Region

## TABLE 6.11
## PROBLEM PRIORITIES
## WORKSHOP INTENSIVE: JANUARY 28 - 29, 1997

| Final Score | Problem | First Score |
|---|---|---|
| 27 | Highway Congestion | 144 |
| 21 | Highway Safety | 81 |
| 21 | Cooperation & Coordination | 66 |
| 16 | Highway Emergency Response | 53 |
| 14 | Funding | 59 |
| 13 | Highway Road & Weather Info. | 58 |
| 10 | Highway Access | 41 |
| 6 | Highway Travel Time | 63 |
| 6 | Local Bus Intersystem Connections | 45 |
| 3 | Legal/Institutional | 32 |
| 2 | Highway Special Events | 36 |
| 2 | Local Bus Status Info. | 28 |
| 1 | Highway Air Pollution | 42 |
| 1 | Highway Lack of Bypass (Alternate Routes) | 51 |
| 1 | CVO Safety Inspection | 39 |
| 1 | Railroad Crossings | 18 |
| 1 | Transit Operations | 8 |
| | Local Bus Travel Times | 41 |
| | CVO HAZMAT Response | 37 |
| | Local Bus Scheduling | 34 |
| | Local Bus Safety/Security | 33 |
| | CVO HAZMAT Routing | 28 |
| | Intercity Bus/Rail Connections | 25 |
| | Highway Travel Time Info. | 24 |
| | CVO Weight Checking | 24 |
| | Intercity Bus Scheduling/Route Mo. | 19 |
| | CVO Regulations | 15 |
| | CVO Fleet Routing | 11 |
| | Highway Noise | 8 |
| | Intercity Bus/Rail Travel Time | 7 |
| | Carpooling Coordination | 6 |
| | Personal Security | 6 |
| | CVO CDL Licensing | 5 |
| | ADA Compliance/Special Populations | 4 |
| | Intercity Bus/Rail Safety/Security | 4 |
| | Local Bus Fleet Management | 3 |
| | Intercity Bus Operations | 1 |
| | Local Bus Fare Collection | 0 |
| | Jntercity Bus Status Info. | 0 |
| | Jntercity Bus Scheduling | 0 |
| | Intercity Bus Fleet Management | 0 |
| | Intercity Bus ADA Compliance | 0 |

***Source: BRW, Inc., May 1997***

## TABLE 6.12
## USER SERVICE PRIORITIES
## WORKSHOP INTENSIVE: JANUARY 28- 29, 1997

| Service | Service Bundle | Score |
|---|---|---|
| 1. Traffic Control | Travel & Transportation Management | 146 |
| 2. Incident Management | Travel & Transportation Management | 101 |
| 3. En-Route Driver Information | Travel & Transportation Management | 71 |
| 4. Route Guidance | Travel & Transportation Management | 67 |
| 5. Traveler Services Info. | Travel & Transportation Management | 52 |
| 6. Public Transportation Management | Public Transportation Operations | 49 |
| 7. Pm-Trip Travel Information | Travel Demand Management | 43 |
| 8. Highway-Railroad Intersection | (Not yet assigned) | 38 |
| 9. HAZMAT Incident Response | Commercial Vehicle Operations | 36 |
| 10. Emergency Vehicle Notification & Personal Security | Emergency Management | 35 |
| 11. Emergency Vehicle Management | Emergency Management | 35 |
| 12. On-Board Safety Monitoring | Commercial Vehicle Operations | 34 |
| 13. Demand Management & Operations | Travel Demand Management | 34 |
| 14. En-Route Transit Information | Public Transportation Operations | 23 |
| 15. Pre-Crash Restraint Deployment | Advanced Vehicle Control | 18 |
| 16. Safety Readiness | Advanced Vehicle Control | 17 |
| 17. Intersection Collision Avoidance | Advanced Vehicle Control | 16 |
| 18. Automated Roadside Safety Inspection | Commercial Vehicle Operations | 14 |
| 19. Personalized Public Transit | Public Transportation Management | 14 |
| 20. Automated Highway System | Advanced Vehicle Control | 13 |
| 21. Freight Mobility | Commercial Vehicle Operations | 11 |
| 22. Electronic Payment Services | Electronic Payment Services | 11 |
| 23. Public Travel Security | Public Transportation Operations | 10 |
| 24. Emissions Testing & Mitigation | Travel & Transportation Management | 10 |
| 25. CV Electronic Clearance | Commercial Vehicle Operations | 9 |
| 26. CV Administrative Processes | Commercial Vehicle Operations | 8 |
| 27. Ride Matching & Reservation | Travel Demand Management | 6 |
| 28. Vision Enhancement for Crash Avoidance | Advanced Vehicle Control | 6 |
| 29. Longitudinal Collision Avoidance | Advanced Vehicle Control | 4 |
| 30. Lateral Collision Avoidance | Advanced Vehicle Control | 0 |

Source: ***BRW, Inc., May 1997***

### *Identification and Prioritization of ITS Strategies/Project Concepts*

Potential lTS strategies were discussed in each of the following four areas:

- Freeway/Incident Management
- Advanced Traffic Signal Control
- Public Transportation Management
- Commercial Vehicle Operations

In terms of specificity, "strategies" fall between User Services and individual projects. For example, "changeable message signs" is an example of an ITS strategy within the User Service "En-Route Driver Information". Each discussion centered around a comparison of suggested ITS solutions from the outreach process (User Needs Survey, Local Agency Interviews and the November 1996 Outreach Workshop) with a "master list" of potential strategies. Potential strategies, their benefits and their relationship to suggested ITS solutions were discussed. Traveler information strategies were not discussed separately but were included throughout the other strategy areas.

Following the discussion, participants rated the strategies based on their ability to address high priority transportation problems, implement high priority User Services and address Overriding Factors. The results of that rating are shown in Table 6.13.

### *Development of Project Concept Descriptions*

In the final activity of the Workshop Intensive, participants divided themselves into one of the following Break-Out groups to discuss specific problems and further develop strategies to address them

- Freeway/Incident Management
- Advanced Traffic Signal Control
- Traveler Information Systems
- Public Transportation Management

It was determined that, with the exception of efforts associated with incident management, opportunities to implement localized, publicly led Commercial Vehicle Operations (CVO) projects in the Miami Valley are limited. Most CVO , applications require coordination over a larger area such as a multi-state interstate corridor, involve weigh stations or border crossings (neither of which are located in the study area), or require supporting national or state legislation. For this reason, a separate CVO Break-Out group was not formed. However, it was decided that relevant CVO issues and projects would be considered within the other Break-Out Groups.

A separate group for Traveler Information Systems was established to insure that information needs beyond the scope of other individual projects would not be overlooked.

## TABLE 6.13
## ITS STRATEGIES/PROJECT CONCEPTS PRIORITIZATION
## WORKSHOP INTENSIVE: JANUARY 28-29, 1997

| Rank | Strategy/Project Concept | Area | Score |
|---|---|---|---|
| 1 | Changeable Message Signs | Freeway Management | 84 |
| 2 | Multi-Jurisdictional Signal System Coordination | Traffic Control | 73 |
| 3 | Advanced Traffic Control System<br>• Closed Loop<br>• Central Systems<br>• Adaptive Signal Control (SCOOT) | Traffic Control | 71 |
| 4 | Detection System | Freeway Management | 67 |
| 5 | Signal Timing and Synchronization Programs | Traffic Control | 63 |
| 6 | Highway Advisory Radio Broadcasts | Freeway Management | 41 |
| 7 | Special Event Traffic Control Plans | Traffic Control | 36 |
| 8 | Advanced Work Zone Traffic Control | CVO, Incident Management and HAZMAT | 33 |
| 9 | Emergency Vehicle Pre-Empt (EVP) | Traffic Control | 26 |
| 9 | Railroad Grade Crossing Advanced Safety Systems | Traffic Control | 26 |
| 9 | Mobility Management System - a central phone number provides access to integrated transit information, including personalized public transit | Transit | 26 |
| 12 | Surveillance Cameras | Freeway Management | 25 |
| 13 | Service Patrols | CVO, Incident Management and HAZMAT | 22 |
| 14 | Surveillance:<br>• Vehicle Detection<br>• Visual, Manual<br>• Visual Automated | Traffic Control | 20 |
| 15 | Integrated Freeway Ramp Signals | Traffic Control | 19 |
| 16 | Traffic Signal Preemption | Transit | 16 |
| 17 | Interactive Traveler Information Kiosks at Travel Information Centers and Other Major Transfer Points | Transit | 14 |
| 17 | Transit Incident Alerts | Transit | 14 |

## TABLE 6.13
## ITS STRATEGIES/PROJECT CONCEPTS PRIORITIZATION
## WORKSHOP INTENSIVE: JANUARY 28-29, 1997

| Rank | Strategy/Project Concept | Area | Score |
|---|---|---|---|
| 17 | Response and Clearance Procedures / Protocol | CVO, Incident Management and HAZMAT | 14 |
| 20 | Traffic Management Center | Freeway Management | 13 |
| 20 | Smart Card Fare Collection / Passenger Counting System | Transit | 13 |
| 22 | En-route Driver-Base Communications to Correct for Schedule Problems (AVL required) | Transit | 12 |
| 22 | Coordination of Enforcement Databases (Weight, Licensing, Driver Inspections) | CVO, Incident Management and HAZMAT | 12 |
| 24 | Automated Transfer Coordinator Connection Protection (AVL required) | Transit | 11 |
| 24 | High Speed Weigh-In-Motion | CVO, Incident Management and HAZMAT | 11 |
| 26 | Ramp Meters | Freeway Management | 10 |
| 27 | Automated Collection of Bus Passenger Loading, Run-Time, and Mileage Data | **Transit** | 9 |
| 27 | Interactive Traveler Information Kiosks at Travel Information Centers and Other Major Transfer Points | Transit | 9 |
| 27 | Electronic Clearance for Safety and Operations Inspection | CVO, Incident Management and HAZMAT | 9 |
| 27 | 1/10 Mile Route Markers | CVO, Incident Management and HAZMAT | 9 |
| 31 | Diversionary Timing Plans and Procedures for Alternative Arterial Routes | CVO, Incident Management and HAZMAT | 8 |
| 32 | Automated Schedule Adherence Monitoring (AVL required) | Transit | 7 |
| 32 | Incident Recording System / Database | CVO, Incident Management and HAZMAT | 7 |
| 32 | Regional Emergency Communications Center and Common Communications System | CVO, Incident Management and HAZMAT | 7 |
| 32 | Database of Scheduled Incidents (Maintenance, Construction and Events) | CVO, Incident Management and HAZMAT | 7 |

**TABLE 6.13**
**ITS STRATEGIES/PROJECT CONCEPTS PRIORITIZATION**
**WORKSHOP INTENSIVE: JANUARY 28-29, 1997**

| Rank | Strategy/Project Concept | Area | Score |
|---|---|---|---|
| 36 | Traffic Signal Priority | Traffic Control | 6 |
| 37 | Provide real-time traffic condition information to dispatch centers of public transit agencies from TOCs | Transit | 5 |
| 37 | On-Board HAZMAT Incident Response Information | CVO, Incident Management and HAZMAT | 5 |
| 39 | Express Bus/Park and Ride | Freeway Management | 4 |
| 39 | HOV Bypass | Freeway Management | 4 |
| 39 | Computer Record Keeping of Telephone Customer Service Unserved Trips | Transit | 4 |
| 39 | Active Transit Station Signs | Transit | 4 |
| 39 | Random-Route (Dial-A-Ride) Transit | Transit | 4 |
| 39 | Integrated Operations Between Arterial, Ramp Terminals and Ramp Meters | CVO, Incident Management and HAZMAT | 4 |
| 39 | Towing Rotational List | CVO, Incident Management and HAZMAT | 4 |
| 46 | Automated Updating of Telephone Customer Service Schedule Database | Transit | 3 |
| 46 | Automated Origin-Destination Driven Telephone Customer Service Database | Transit | 3 |
| 46 | Evaluation of Driver Fitness for Duty (OOS Determinations) | CVO, Incident Management and HAZMAT | 3 |
| 46 | Special Access Points for Maintenance and Emergency Vehicles | CVO, Incident Management and HAZMAT | 3 |
| 50 | Automated Identification and Billing System (AIBS) for Paratransit | Transit | 2 |
| 50 | Single Trip Ridesharing (using both advance and real-time reservations) | Transit | 2 |
| 50 | Use of Remote Sensors and Cameras | Transit | 2 |
| 50 | Innovative Measures to respond to Incidents | Transit | 2 |
| 50 | On-Board Safety System Monitoring | CVO, Incident Management and HAZMAT | 2 |

## TABLE 6.13
## ITS STRATEGIES/PROJECT CONCEPTS PRIORITIZATION
## WORKSHOP INTENSIVE: JANUARY 28-29, 1997

| Rank | Strategy / Project Concept | Area | Score |
|---|---|---|---|
| *50* | Total Stationing Equipment | CVO, Incident Management and HAZMAT | *2* |
| *50* | List of Key Equipment in Region | CVO, Incident Management and HAZMAT | 2 |
| *57* | Enhanced Computerized Driver Scheduling (Run Cutting) System | Transit | 1 |
| *57* | On-Board Electronic Destination Signs | Transit | 1 |
| *57* | On-Board Automated Bus Stop Annunciators | Transit | 1 |
| *57* | Post Incident Debrief Sessions | CVO, Incident Management and HAZMAT | 1 |
| *61* | Central DB for HAZMAT Incident Response | CVO, Incident Management and HAZMAT | 1 |

Source: ***BRW, Inc., May 1997***

Each Break-Out Group was asked to begin their discussions by identifying and prioritizing the problems specific to their area. The previous large-group prioritization of general regional transportation problems was used as a starting point. After reaching agreement on the most significant problems within their specific area, the groups were asked to identify and prioritize ITS strategies to address those problems. Again, the results of the previous large-group ranking of potential strategies was used as a basis for this activity. Finally, the groups were asked to develop descriptions of specific projects to implement their highest priority strategies.

The Break-Out Groups were given flexibility in how they approached this activity and as a result, the products of the groups vary considerably in terms of format and substance. The results are presented here in essentially the same form as which they were presented by the Break-Out Groups themselves at the conclusion of the Workshop. The results of the Break-Out Group discussions are summarized in Table 6.14.

## 6.3 QUANTITATIVE ASSESSMENT ACTIVITIES

The quantitative assessment of regional transportation conditions centered on the development of maps and tables summarizing area freeway/interstate and major arterial street deficiencies and issues. Issues in non-highway areas, such as traveler information and transit, were addressed through the qualitative activities described in Section 6.2. The quantitative roadway assessment described in this section will be used in conjunction with the results of the qualitative assessment activities described in Section 6.2 to guide the development of recommended projects.

Freeway/Interstate Issues

The freeway/interstate facilities that were considered in this analysis are shown in Figure 6-1. The following data was collected and mapped for each facility:

- existing congestion (daily level of service);
- forecasted congestion;
- safety (accident rates); and
- roadway design deficiencies.

Each type of data was added as a layer to a single map, yielding a composite map where the magnitude of deficiencies was established based on the presence or absence of the various layers. The methodology for each type of data and the resulting deficiencies and priorities summary maps are briefly described below.

**TABLE 6.14**
**SUMMARY OF WORKSHOP INTENSIVE**
**BREAK-OUT GROUP PROJECT DISCUSSIONS**

**Freeway/Incident Management**

**Problems:**

- Incident-Related Congestion due to:

  *- Lack of Incident Detection*
  *- Inadequate Incident Response*
  *- Lack of Incident Information*

- Congestion caused by Special Events
- Congestion caused by Limited Capacity/Geometric Design
- Lack of Highway Road and Weather Information
- Inadequate Work Zone Traffic Control/Info.

**Strategies:**

A matrix associating potential Freeway/Incident Management strategies with the problems listed above appears on the next page.

**Potential Freeway/Incident Management System Deployment Locations:**

- I-75 from I-675 in the south to Northwoods Boulevard (Vandalia) in the north
- I-70 from Airport Access Road in the west to State Route 41 in the east
- I-675 from I-75 in the south to I-70 in the north
- US 35 from the planned SR 49 Relocation (the Trotwood Connector) in the west to the east side of Xenia
- State Route 4 from I-75 in the south to I-70 to the north

## TABLE 6.14, continued
## SUMMARY OR WORKSHOP INTENSIVE
## BREAK-OUT GROUP PROJECT DISCUSSIONS

### Freeway/Incident Management Problems Vs. Strategies

| Problems | Ramp Meters | Detection System | Surv. Cameras | Express Bus/ Park & Ride | HOV Bypass | Changeable Message Signs | Highway Advisory Radio | Traffic Mgt. Center | Service Patrols | Cellular Hotline System | Incident Recording System/ Database | Response & Clearance Procedures/ Protocol | Advanced Work Zone Traffic Control | Database of Scheduled Incidents (Maint., Const. & Events) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Incident-Related Congestion<br>- *Lack of Incident Detection*<br>*Inadequate Incident Response*<br>- *Lack of Incident Information* | | | | | | ● | ● | | ● | ● | | ● | | |
| Congestion caused by Special Events | | | | ● | | ● | ● | | | | | | | ● |
| Congestion caused by Limited Capacity/ Geometric Design | | | | ● | | ● | ● | | | | | | | |
| Lack of Highway Road and Weather nformation | | ● | | | | | | | ● | ● | | | | |
| Inadequate Work Zone Traffic Control/Info. | | | | | | ● | ● | | | | | | | |

## TABLE 6.14, continued
## SUMMARY OR WORKSHOP INTENSIVE
## BREAK-OUT GROUP PROJECT DISCUSSIONS

**Problems:**

| Rank | Score | Problem |
|---|---|---|
| 1 | 10 | Impacts of Detouring Traffic (Incidents/Events) |
| 1 | 10 | Signal System Timing Optimization |
| 2 | 9 | Signal System Modernization and Maintenance |
| 3 | 8 | Inadequate Regional Coordinaton/Cooperation of Adjacent Traffic Signal Systems |
| 4 | 4 | ODOT Signals Not Integrated into Local Systems |
| 4 | 4 | Access Management of Development |
| | 2 | Funding |
| | 1 | Delays from too many signals |
| | 0 | Lack of Protected Left Tums |
| | 0 | Work Zone Traffic Control Maintenance |
| | 0 | Response Times and Safety for Emergency Vehicles |
| | 0 | Transit Vehicle Pre-Empt |
| | 0 | Railroad Crossing Delays |

**Strategies:**

| Rank | Score | Strategy |
|---|---|---|
| 1 | 10 | Advanced Traffic Control Systems |
| 1 | 10 | Signal Timing and Synchronization |
| 2 | 8 | Regional Traffic Management Control |
| 3 | 7 | Multi-jurisdictional Signal System Coordination |
| 4 | 4 | Regional Project Management |
| 5 | 1 | Surveillance |
| | | Emergency Vehicle Preemption |
| | | Integrated Freeway Ramp Signals |
| | | Traffic Signal Priority |
| | | Railroad Grade Crossing Advanced Safety Systems |

## TABLE 6.14, continued
## SUMMARY OR WORKSHOP INTENSIVE
## BREAK-OUT GROUP PROJECT DISCUSSIONS

**Project Descriptions:**

1. Advanced (Adaptive) Traffic Control Systems (e.g., SCOOT)

*What is the purpose of the project? What problem(s) does if address?*

Reduced delay, increased efficiencies, reduced incidents, reduced emissions, cost efficient

*What is good location for an initial deployment? Where should the project expand to? Regionwide?*

- SR 725 (I-75 to SR 48)
- SR 741 (Moraine to Austin Pike)

*Who would lead the project, what other organizations would participate and how?*

ODOT

*What are the steps in the deployment?*

Demonstration project
Currently scheduled for closed-loop

***How could this project be funded?***

Federal

Unanswered *questions/issues.*

Who operates?

2. Signal Timing and Synchronization Programs

*What is fhe purpose of the project? What problem(s) does it address?*

Reduced delay, increased efficiencies, reduced incidents, reduced emissions, cost efficient

*What is a good location for an initial deployment? Where should the projecf expand to? Regionwide?*

- US 35 east and west of Dayton (adaptive or closed-loop)
- State Routes 201 and 202 in Huber Heights

*How could this project be funded?*

STP or CMAQ

*Who would lead the project, what other organizations would participate and how?*

ODOT

3. Regional Traffic/Traffic Signal Control Center

*What is the purpose of the projecf? What problem(s) does if address?*

- Integration of areas systems
- Multi-jurisdictional

**TABLE 6.14, continued**
**SUMMARY OR WORKSHOP INTENSIVE**
**BREAK-OUT GROUP PROJECT DISCUSSIONS**

*What is a good location for an initial deployment Where should the project expand to? Regionwide?*

The four-county area

*Who would lead the project, what other organizations would participate and how?*

Regional group

*What are the steps in the deployment?*

- Preliminary meetings and negotiations with system operators
- Communications links

*How could this project befunded?*

Combined funding

Unanswered *questions/issues*

Who and how managed?

4. Special Event Traffic Control Plans

*What is a good location for an initial deployment? Where should the project expand to? Regionwide?*

- Sporting events
- Fairfield mall
- University
- Nutter Center
- I-675
- SR844
- Colonel Glenn Highway
- Fairfield Road

*Who would lead the project, what other* organizations would *participate and how?*

*MVRPC*
Partially existing project (Nutter Center)

*What are the steps in the deployment?*

Existing process

*How could this project be funded?*

Already funded (Nutter Center)

*Unanswered questions/issues*

Who manages?

**TABLE 6.14, continued**
**SUMMARY OR WORKSHOP INTENSIVE**
**BREAK-OUT GROUP PROJECT DISCUSSIONS**

**Traveler Information Systems**

**Problems:**

1. Highway Congestion
2. Highway Road Work and Weather
3. Highway Travel Time
4. Traveler Information Services
5. Alternate Routes (Lack of Bypass)
6. Route Guidance
7. Highway Special Events
8. Transit Operations
9. Local/Intercity Bus Intersystem Connection
10. Local/Intercity Bus Status Information
11. CVO HAZMAT Routing
12. Railroad Crossing
13. Highway Safety

Strategies:

| Strategies/Project Concepts | Ranking |
|---|---|
| Media Reports (TV, Radio) | 1 |
| Changeable Message Signs | 1 |
| Cable TV | 3 |
| Highway Advisory Radio Broadcasts | 4 |
| Automated Telephone Systems | 5 |
| Internet | 6 |
| Active Transit Station Signs | 7 |
| Pagers | 7 |
| Kiosk | 9 |
| Fax Services/E-mail | 9 |
| Pavement/Weather Sensing Stations | 11 |
| Bulletin Board | 12 |
| In-Vehicle | 13 |
| On-Board Transit Information | 14 |
| Portable CMS and Highway Advisory Radio | 15 |
| Personal Communication Devices | 0 |
| Interactive Television | 0 |

## TABLE 6.14, continued
## SUMMARY OR WORKSHOP INTENSIVE
## BREAK-OUT GROUP PROJECT DISCUSSIONS

Project Descriptions:

1. Media Reports

***What is the purpose of the project? What problem(s) does it address?***

Assumed that traffic data is available. Enhance the dissemination of accident/incident information to the local media (TV and radio) to provide a more detailed and consistent reporting of this information.

2. Changeable Message Signs

*What is the purpose of the project? What problem(s) does it address?*

Assume that traffic data is available. To provide accident/incident information to the traveling (en-route) public at a place and time where alternate routing decisions can be made. This would provide travelers information en-route so they could avoid congestion.

***What is a good location for an initial deployment? Where should the project expand to? Regionwide?***

I-75 Corridor

3. Cable TV

***What is the purpose of the project? What problem(s) does it address?***

Assume that traffic data is available (incidents, speed, congestion). Enhance the dissemination of accident, speed and congestion data to the public via a dedicated travel channel. This would provide travelers with pre-trip information to allow them to make smart travel decisions.

4. Highway Advisory Radio Broadcasts

*What is the purpose of the project? What problem(s) does it address?*

Assume that traffic data is available (speed, congestion, accidents and other various messages). Provide a way to transmit travel information to drivers en-route. Messages can be loaded in real-time by an operator often located in a centralized traffic control center. The purpose is to inform drivers of current events or status to allow him/her to make smart travel decisions.

***What is a good location for an initial deployment? Where should the project expand to? Regionwide?***

- State Route 670
- I-70 (around Huber Heights)

***How could this project be funded?***

$35,000 per location plus control center costs and phone lines.

**TABLE 6.14, continued**
**SUMMARY OR WORKSHOP INTENSIVE**
**BREAK-OUT GROUP PROJECT DISCUSSIONS**

***Unanswered questions/issues***

Need a control center to maintain messages.

Automated Telephone System

***What is the purpose of the project? What problem(s) does it address?***

Assume that data is available. To provide wide-area route-specific information on a device that is readily available to the general public.

Internet

***What is the purpose of the project? What problem(s) does it address?***

Assume that traffic data is available. To establish a WWW page that provides interactive capabilities to receive traffic related information (speed, congestion, routing, road work) that would enable travelers to make informed pre-trip travel decisions.

## TABLE 6.14, continued
## SUMMARY OR WORKSHOP INTENSIVE
## BREAK-OUT GROUP PROJECT DISCUSSIONS

**Public Transportation Systems**

**Problems (in no particular order):**

- Low Ridership
- Land-Use Policy/Development Patterns
- Long Travel Times
- Insufficient Service: Long Headways
- Insufficient Service: Route Coverage
- Lack of Information - Not User Friendly
- Uncoordinated/Inefficient: Among Providers
- Regulations and Turfism: Constraint to Coordination
- Equity/Regional Cross-Subsidy/"Donors" and "Recipients"
- Relatively High Cost per Rider
- Safety/Security Concerns

**Regional Transit Assets:**

- 2 Fixed Route Systems (MVRTA & SCAT):
  - approximately 265 full-sized buses
  - 200 plus Human Service vehicles
  - 65 demand-responsive vehicles

- 2 Rural Systems
  - approximately 25 vehicles

**Strategies:**

1. AVL Transit Management System

   - Schedule adherence monitoring (incidents)
   - Flexible services
   - Automated collection of run time, loading and mileage data (for planning and more achievable schedules

2. Traveler Information System - First Static, then Real-Time

   - Kiosks at hubs
   - Internet
   - On-Board Annunciators
   - Active Station Signs (major stops)

3. Mobility Management System

   - Single user interface/"seamless" information and reservation
   - Coordination among providers

**TABLE 6.14, continued**
**SUMMARY OR WORKSHOP INTENSIVE**
**BREAK-OUT GROUP PROJECT DISCUSSIONS**

4. Safety / Security Monitoring (Cameras, Silent Alarms)

- On-Board
- Facilities (parking lots, etc.)

5. Traffic Signal Priority

6. Data Feed from / Coordination with Traffic Management Center

## TABLE 6.14, continued
## SUMMARY OR WORKSHOP INTENSIVE
## BREAK-OUT GROUP PROJECT DISCUSSIONS

Projects:

1. AVL Transit Management System

Automatic vehicle location is the foundation and linch pm in the overall strategy for transit ITS deployment. Most of the other strategies depend upon, and build upon, AVL.

***What is a good location for an initial deployment? Where should the project expand to? Regionwide?***

City of Dayton / Montgomery County - RTA service area

***Who would lead the project, what other organizations would participate and how?***

RTA would lead. Later expand to involve other transit assets.

***What are the steps in the deployment?***

Doesn't need a "test" deployment - it's proven technology. Go RTA fleet wide immediately.
The technology should allow for expansion.
Work to bring on SCATS, human services transportation agencies and maybe (later) EMS, fire, police, street maintenance, school buses, etc.

***How could this project be funded?***

- Section 3 money (already turned down for radio requests)
- CMAQ
- Money freed up from other projects - RTA not pursuing - battery buses
- ITS funds dependent on NEXTEA?
- Tie-in with EMS purchases (police, fire)

*Source: BRW, Inc., May 1997*

### *Congestion*

Freeway/interstate roadway segments with existing and forecasted average daily Levels of Service E or F were identified. This information was taken from the Ohio Department of Transportation's 1990 and 2020 "Existing Plus Committed Roadway Projects" regional travel forecasts.

### *Safety*

Freeway/interstate accident data was obtained from the Ohio Department of Transportation for the 1993 to 1995 time period for each of the freeway/interstate segments within the four county Miami Valley ITS study area. Some of the segments included accident rates and some did not. For those segments that did not include accident rates, accident rates were calculated based on the segment length and a generalized segment average daily traffic volume. The freeway segments within the study area and the documented accident rates are shown in Table 6.15. The data indicate that accident rates on the various segments range from 0.6 accidents per million vehicle miles (Acc/MVM) to 1.6 Acc/MVM.

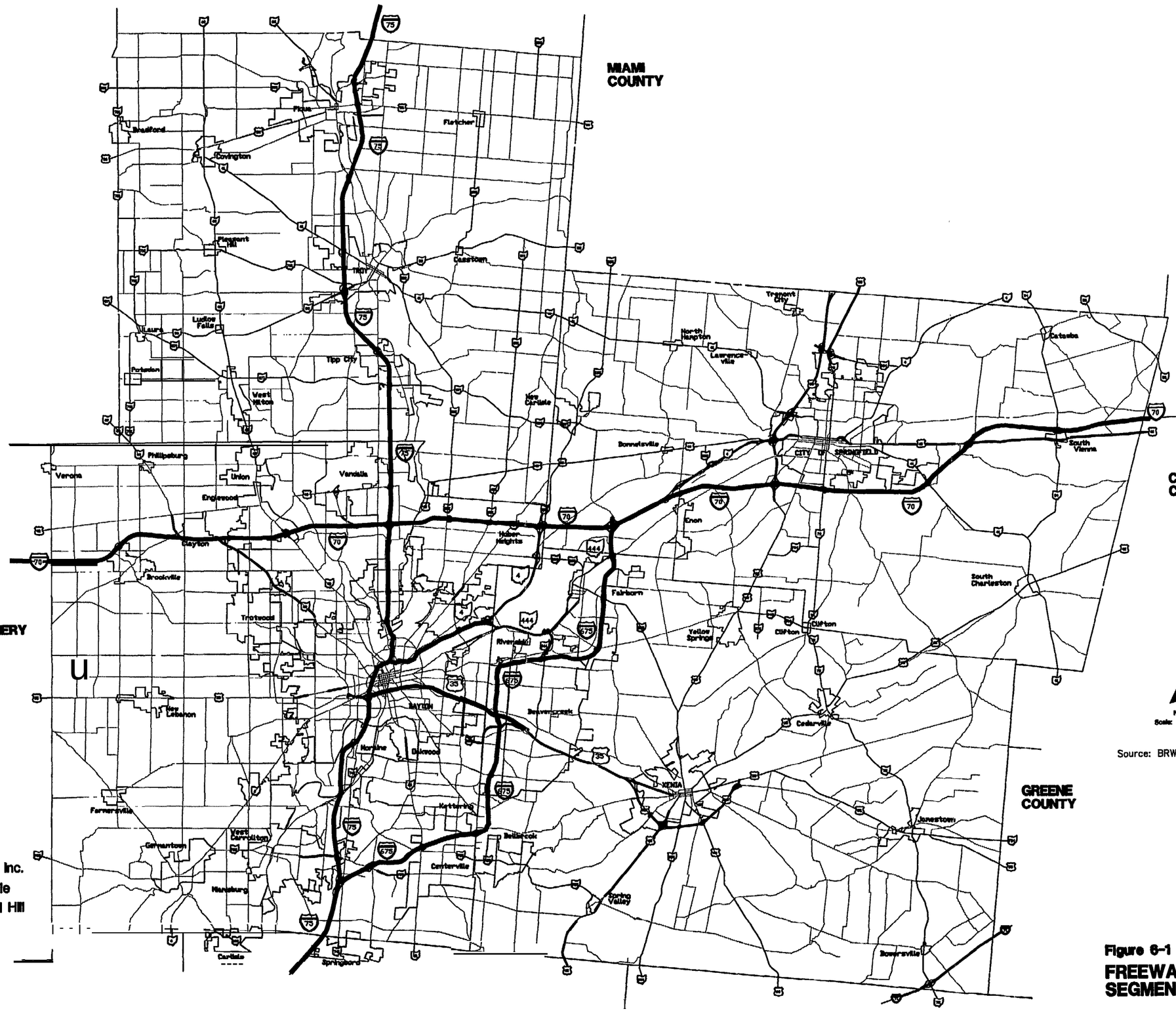
The accident rates for each of the freeway segments were compared to a typical average urban freeway accident rate (1.7 accidents per million vehicle miles) to identify problem areas, based on the assumption that Miami Valley freeway/interstate segments with rates above the typical average rate represent problem areas. As shown in Table 6.15, none of the segments analyzed have accident rates above the typical average rate.

Although the accident rates analysis does not indicate higher accident rates than are typical, the relative accident rates of different freeway/interstate segments are useful in identifying the appropriate geographic phasing of ITS projects which address accidents or their effects. For mapping purposes, the accident rates were stratified into high, medium and low categories corresponding to the upper, middle and lower thirds of the accident rate distribution. Segments within the two highest categories were mapped.

### *Design Deficiencies*

The following six regional freeway/interstate segments were assessed for design deficiencies based on a subjective "windshield survey":

- ***I-75*** from I-675 to I-70
- I-70 from the Airport Access Road to I-675
- ***I-675*** from I-75 to I-70
- US 35 from Third Street to Xenia
- SR 4 from I-75 to I-70
- SR 444 from SR 4 to I-675.




Source: BRW, Inc. May 1997

MIAMI VALLEY ITS
EARLY DEPLOYMENT PLAN

BRW, Inc.
Battelle
CH2M Hill
LJB

MVRPC
Miami Valley Regional Planning Commission

**Figure 6-1**
**FREEWAY / INTERSTATE SEGMENTS ANALYZED**

freeanal.dwg 8-7-97

**TABLE 6.15**
**FREEWAY/INTERSTATE ACCIDENT ANALYSIS**

| Segment | Average Daily Volume (2) | Length (mi.) | Avg. # Acc./Yr. (1) | Acc. Rate (Acc./mvm) | Avg. Rate (Acc./mvm) | Is Rate > Avg. Rate |
|---|---|---|---|---|---|---|
| Montgomery County | | | | | | |
| I-75 (I-70 to US 35) | 91,000 | 9 | 480 | 1.6 | 1.7 | No |
| I-75 (I-70 to Miami County) | 63,000 | 4 | 130 | 1.4 | 1.7 | No |
| I-75 (US 35 to Warren County) | 78,000 | 11.4 | 451 | 1.4 | 1.7 | No |
| I-70 (I-75 to Clark County) | 43,000 | 11 | 187 | 1.1 | 1.7 | No |
| I-70 (I-75 to Preble County) | 34,000 | 12.6 | 157 | 1.0 | 1.7 | No |
| I-675 (I-75 to Greene County) | 43,000 | 7.4 | 128 | 1.1 | 1.7 | No |
| Clark County | | | | | | |
| I-70 | 40,000 | 29.3 | 404 | 1.0 | 1.7 | No |
| Greene County | | | | | | |
| I-71 | 26,000 | 4.1 | 22 | 0.6 | 1.7 | No |
| I-675 (Montgomery County to SR 444) | 54,000 | 7.7 | 150 | 1.0 | 1.7 | No |
| I-675 (SR 444 to I-70) | 41,000 | 10 | 131 | 0.9 | 1.7 | No |
| Miami County | | | | | | |
| I-75 | 45,000 | 20 | 361 | 1.1 | 1.7 | No |

(1) Ohio Department of Transportation (1990)
(2) Ohio Department of Public Safety (1995)
(3) Daily Volumes were averaged over entire segment length

Source: BRW, Inc., April 1997

The assessment considered the following design features:

- Substandard Horizontal and Vertical Curvature
- Short or Difficult Weaves
- Short Merge Areas
- Left Side On/Off Ramps
- Loop Ramps
- Features which Limit Capacity During Peaks

For the most part, the detrimental impact of each of these characteristics on capacity and safety are self evident. Curves that are too tight and roads with abrupt crests and valleys reduce sight distances, slow traffic and create safety problems. Merge and weave sections that are too short do not provide adequate gaps for safe lane changes. Relative to diamond interchanges, loop ramps create slower and more difficult merges. Left side on/off ramps, which are generally much less common than right side ramps, conflict with driver expectations and compound the negative impact of merging traffic on through lane capacity by introducing merging vehicles directly into what is normally the fastest moving lane.

For each segment, any specific relevant design deficiencies were identified. Based on these deficiencies, the segment was given an overall numeric rating from 1 (very poor) to 5 (very good). Table 6.16 presents this information. Segments with a rating of 3 or below were mapped.

***Summary of Freeway/Interstate Issues***

The information described above was mapped as layers on maps for the four county study area. These maps are shown as Figures 6-2 through 6-5. This information is presented in tabular form in Table 6.17.

## Arterial Street Issues

A deficiencies data collection and mapping effort similar to the one performed for freeways/interstates was conducted for major arterial streets. This exercise considered all major arterial roadways as well as other roadways which parallel freeways and which represent potential reliever routes. A map of the roadways which were considered in this analysis is shown in Figure 6-6.

***Congestion***

Like the freeway/interstate deficiencies analysis, the analysis of regional major arterial streets mapped existing and forecasted Levels of Service of E or worse. Data was not available for Clark County, which is currently preparing an update to their regional traffic forecasting model. Congestion data for Greene, Miami and Montgomery Counties was supplied by the Miami Valley Regional Planning Commission.

## TABLE 6.16
## SUMMARY OF REGIONAL FREEWAY/INTERSTATE DESIGN DEFICIENCIES ASSESSMENT

| Route | Segment | Design Deficiencies | Overall Rating (1=very poor; 5=very good) |
|---|---|---|---|
| L-75 (south to north) | Montgomery County Line thru US 35 interchange | None notable | 4 |
| | Thru SR 4 interchange | Substandard Horizontal Curvature<br>Short or Difficult Weaves<br>Short Merge Areas<br>Left Side On/Off Ramps<br>Capacity Limiting During Peaks | 2 |
| | Thru Needmore Road interchange | Substandard Vertical Curvature<br>Short or Difficult Weaves<br>Short Merge Areas<br>Capacity Limiting During Peaks | 3 |
| | Little York Road thru I-70 interchange | Short or Difficult Weaves<br>Short Merge Areas<br>Loop Ramps<br>Capacity Limiting During Peaks | 2 |
| | Thru Miami county | None notable | 4-5 |
| I-70 (west to east) | Montgomery County Line to I-75 | Capacity Limiting During Peaks | |
| | I-75 interchange | Short or Difficult Weaves<br>Short Merge Areas<br>Loop Ramps<br>Capacity Limiting During Peaks | 2 |
| | Thru SR 210 | Short Merge Areas<br>Loop Ramps<br>Capacity Limiting During Peaks | 3 |
| | Thru Greene and Clark . Counties | None notable | 4-5 |
| I-675 (south to north) | I-75 to I-70 | Minor Difficulties at Fairfield Road | 4-5 |
| US 35 (west to east) | I-75 to Smithville Road | Left Side On/Off Ramps | 3-4 |
| | Thru I-675 | | 3-4 |
| SR 4 (south to north) | I-75 to SR 444 | Includes At Grade Access | 3 |

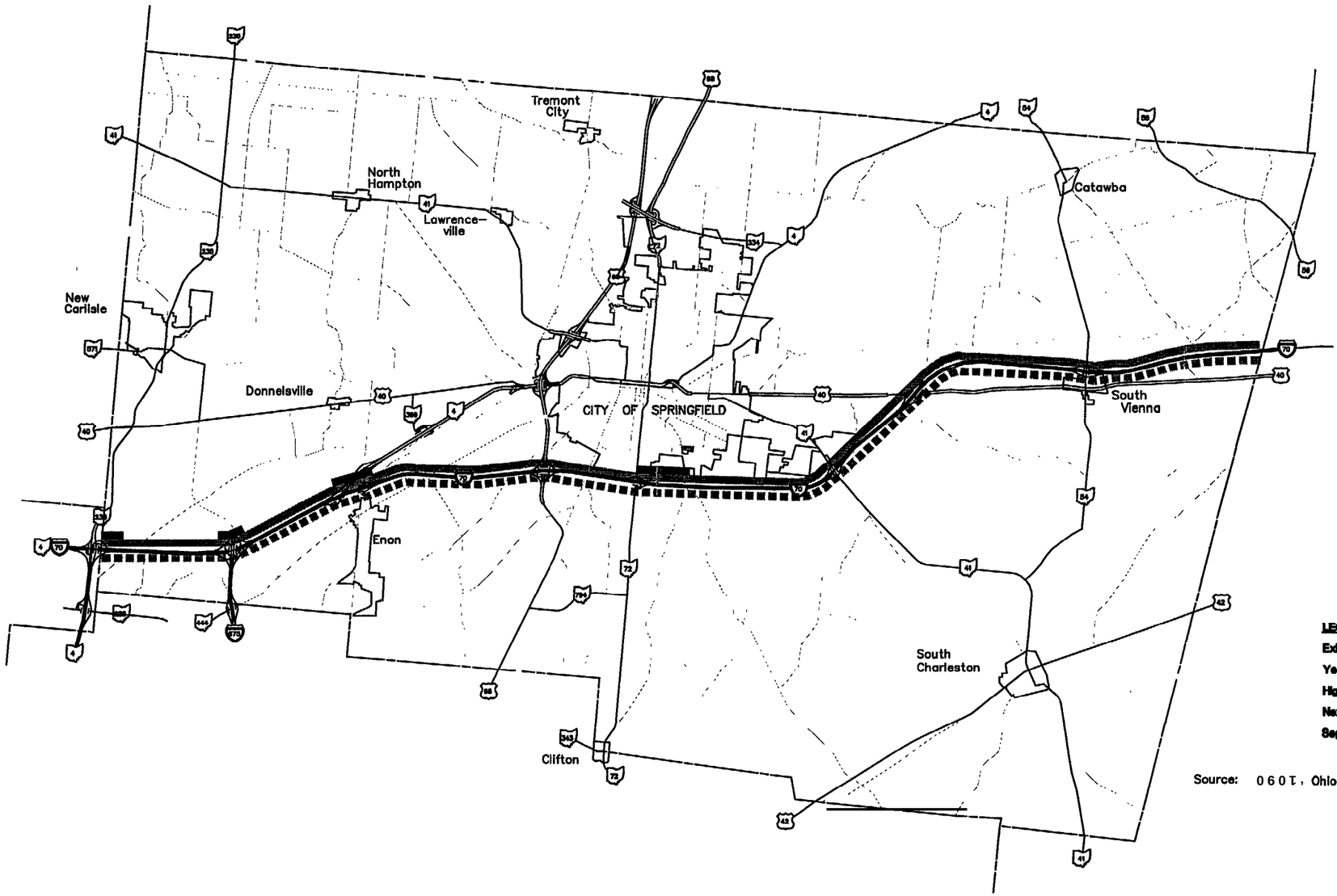
Source: LJB & BRW, Inc., April 1997.

**TABLE 6.17**
**SUMMARY OF FREEWAY/INTERSTATE ISSUES**

| County | Roadway | Segment (1) | Existing Congestion (2) | Forecasted Congestion (3) | "High" Accident Rate (4) | "Moderate" Accident Rate (5) | Design Deficiencies (6) |
|---|---|---|---|---|---|---|---|
| | 70 (west to east) | Montgomery County line to SR 235 interchange (or Mud Creek crossing) | X | X | | X | |
| | | SR 235 overpass **to** I-675 interchange | | X | | X | |
| | | i-675 interchange | X | X | | X | |
| | | I-675 interchange to SR 4 interchange | | X | | X | |
| | | SR 4 interchange through Enon Road overpass | X | X | | X | |
| | | Enon Road overpass to SR 72 | | X | | X | |
| | | SR 72 to Old Selma Road | X | X | | X | |
| | | Old Selma Road to east Clark County line | | X | | X | |
| Greene | 675 (south to north) | Montgomery County line to US 35 | | X | | X | |
| | | US 35 to Grange Hall Road | | | | X | |
| | | Grange Hall Road to Beavercreek border | | X | | X | |
| | | Beavercreek Corporate Limit to North Fairfield Road | | X | | X | X |
| | | North Fairfield Road to west of Beaver Valley Road | | X | | | X |
| | | West of Beaver Valley Road to Dayton-Yellow Springs Road | | X | | | |
| Miami | 75 (south to north) | Montgomery County line to SR 571 | | X | | X | |
| | | SR 571 throuah Tipp Citv border north crossing | | X | | | |
| | | Tipp City border north crossing to north Miami County line | | X | | X | |
| Montgomery | 75 (south to north) | Montgomery County Line through US 35 interchange | X | X | X | | |
| | | US 35 interchange through Needmore Road interchange | X | X | X | | X |
| | | Needmore Road interchange through Little York Road | X | X | X | | |
| | | Little York Road through I-70 interchange | X | X | X | | X |
| | | I-70 interchange through US 40 interchange | X | X | X | | |
| | | US 40 interchange through Vandalia border north crossing | | X | X | | |
| | | Vandalia border north crossing to south Miami County line | | | X | | |
| | 70 (west to east) | Montgomery County Line through SR 49 west interchange | | | | X | |
| | | SR 49 west interchange to SR 49 east crossing | | X | | X | |
| | | SR 49 east crossing to SR 48 | | | | X | |
| | | SR 48 to I-75 | X | X | | X | |
| | | I-75 interchange to SR 201 | | X | | X | X |
| | | SR 201 to Clark County Line | | X | | X | |
| | 675 (west to east) | I-75 to Greene County line | | | | X | |

(1) All locations are approximate
(2) 1990 Daily Level of Service E or F
(3) 2020 Daily Level of Service E or F
(4) Locations with accident rates within the upper one-third of all segments analyzed
(5) Locations with accident rates within the middle one-third of all segments analyzed
(6) A subjective assessment based on a field review considering factors such as weaving/merging distances, interchange spacing, horizontal and vertical curvature, left side on/off ramps and loop ramps

Source: BRW, Inc., May 1997.




Source: OGOI, Ohio Dept. of Public Safety, LJB, & BRW, April 1997.

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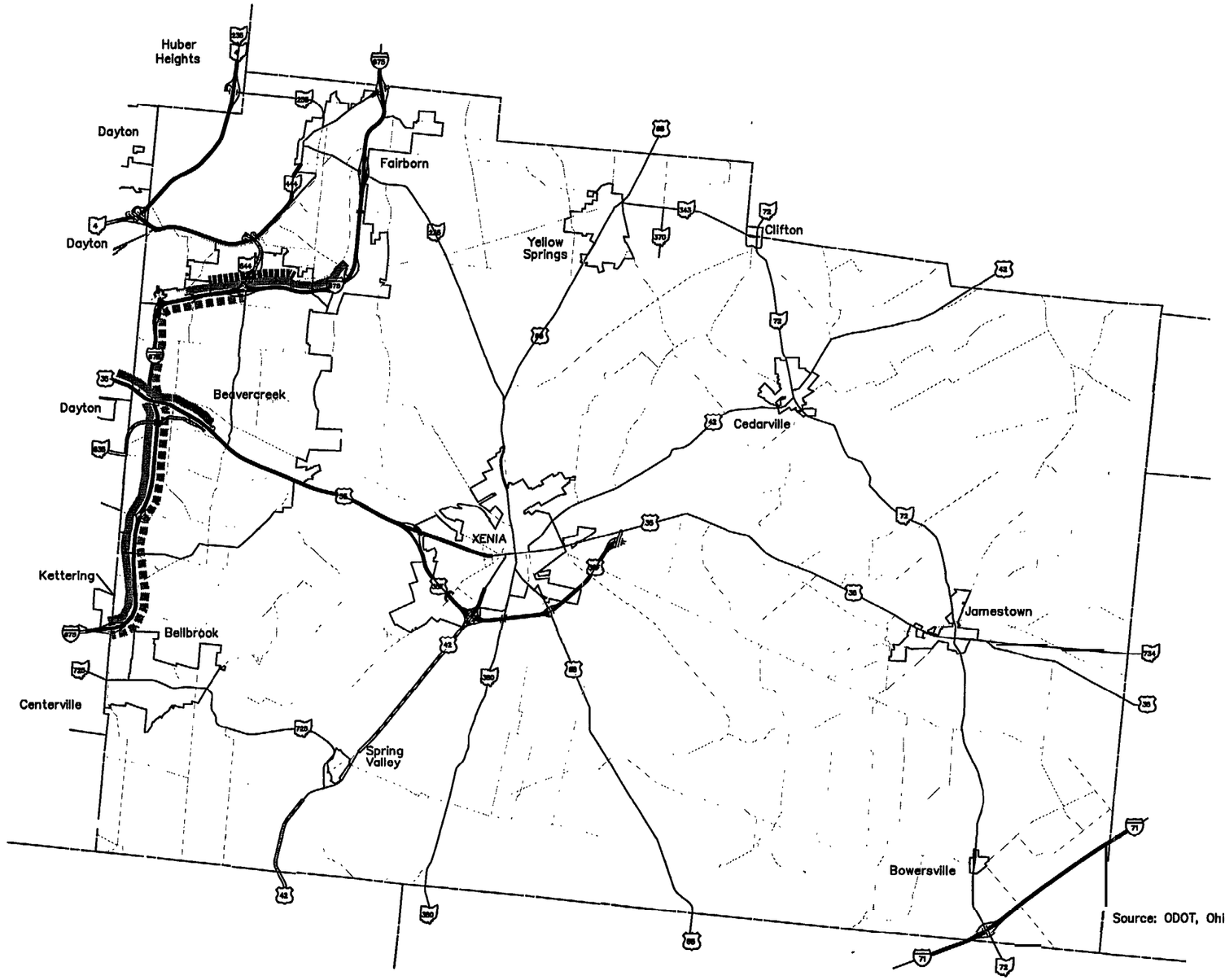
**Figure 6-2**
**FREEWAY / INTERSTATE ISSUES**
**CLARK COUNTY**

clark-fo.dwg 8-LB-L




Source: ODOT, Ohio Dept. of Public Safety, LJB, & BRW, April 1997.

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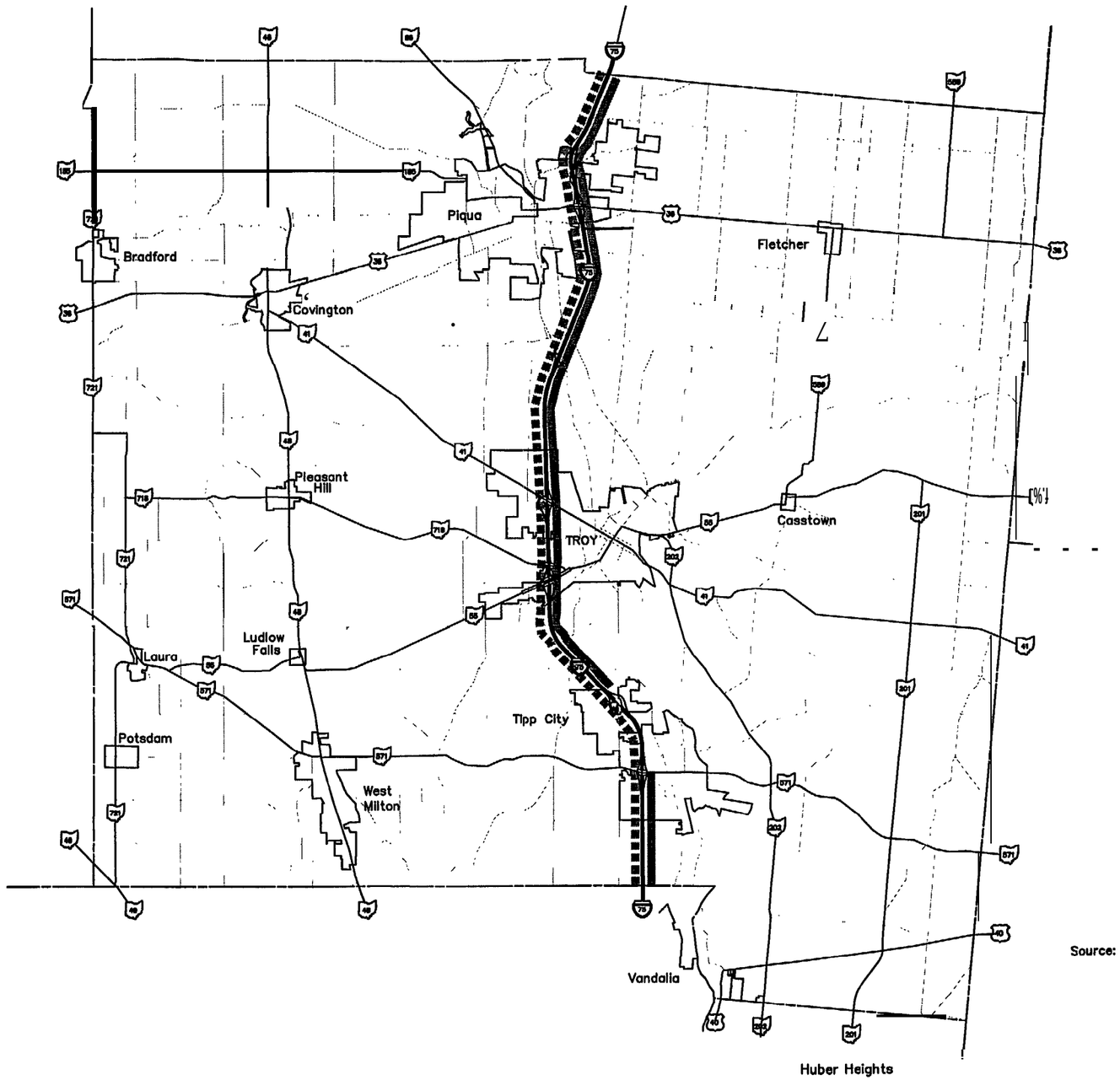
**Figure 6-3**

**FREEWAY / INTERSTATE ISSUES**
**GREENE COUNTY**

green-fo.dwg 8-1-98




**LEGEND:**

- Existing Congestion (E or F)
- Year 2020 Congestion (E or F)
- Highest Accident Rate Segments
- Next Highest Accident Rate Segments
- Segments With Design Deficiencies

Source: OOOT, Ohio Dept. of Public Safety, LJB, & BRW, April 1997.

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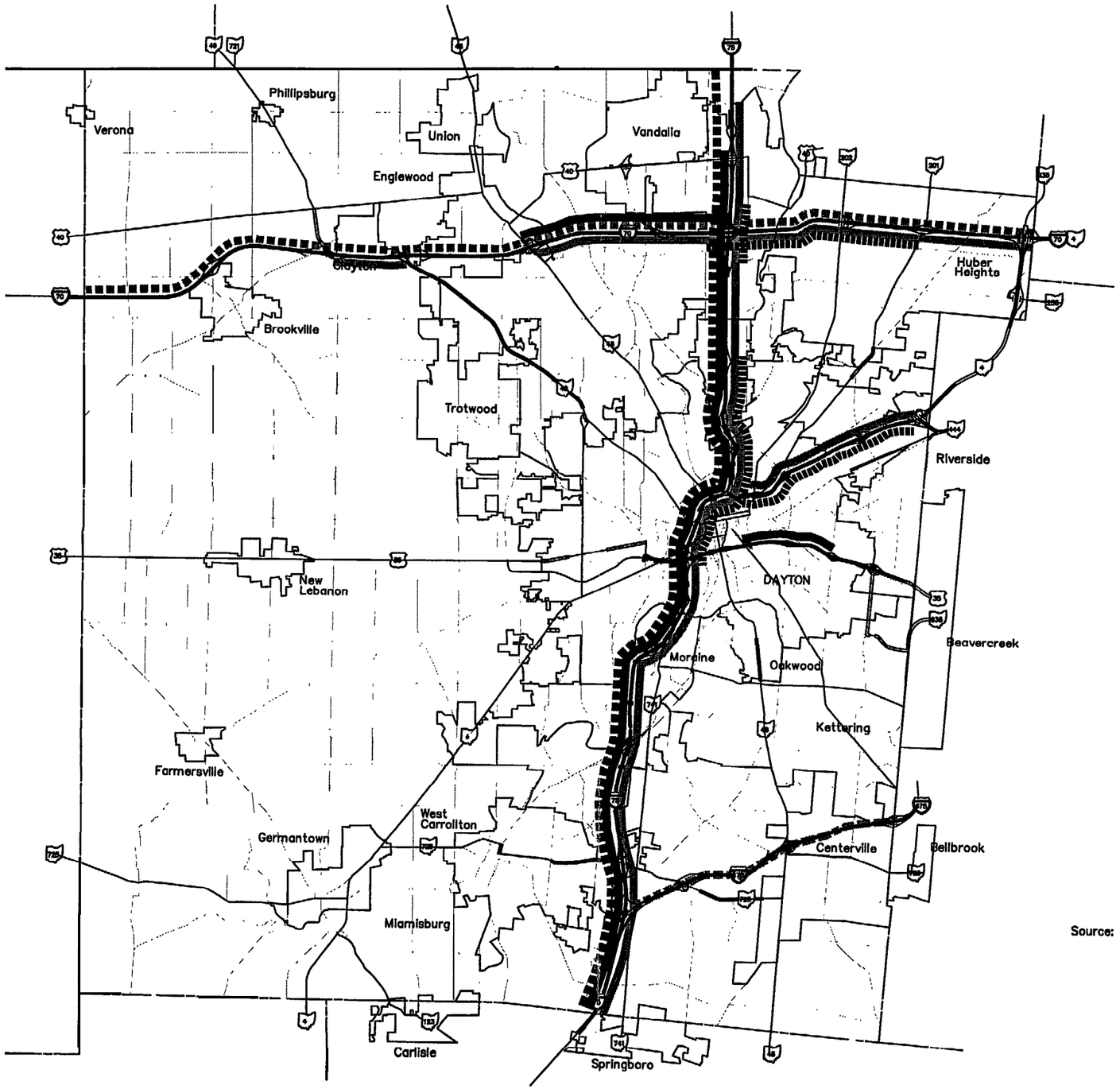
**Figure 6-4**
**FREEWAY / INTERSTATE ISSUES**
**MIAMI COUNTY**

LB-L-8 6mp*04-lumlu




Source: ODOT, Ohio Dept. of Public Safety, LJB, & BRW, April 1997.

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**Figure 6-5**

**FREEWAY / INTERSTATE ISSUES**
**MONTGOMERY COUNTY**

montg-fo.dwg 8-7-97

MIAMI COUNTY

MONTGOMERY COUNTY

CLARK COUNTY

GREENE COUNTY

NORTH
Scale: 1" = 25,000'

Source: BRW, Inc. May 1997

LEGEND:
Study Roadway

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**Figure 6-6**
**ARTERIAL STREET CORRIDORS ANALYZED**

artanal.dwg 8-7-97

## *Safety*

Traffic accident rates were calculated for a sampling of 20 area arterial street intersections. The sample was selected based two "most dangerous intersection" news articles published in the Dayton Daily News, as well as information collected from the Cities of Dayton, Kettering and Springfield and the Ohio Department of Public Safety (1995 Highway Accidents by County).

The "critical rate" accident analysis methodology was used. This approach identifies problem locations based on the difference between site specific accident rates and areawdide average rates for similar locations. . Some variation from the average is expected and does not necessarily suggest a localized safety problem. However, if a rate sufficiently exceeds the average, i.e., exceeds a "critical rate", the difference is statistically valid and suggests that there may be a localized safety problem.

An average accident rate was calculated using a sample of ten intersections considered to be representative of Miami Valley urban arterial street intersections in terms of traffic volumes, design and traffic control. Using a typical average accident rate of 1.5 accidents per million entering vehicles for urban signalized intersections, a critical rate was calculated at each of the 20 "problem" locations. The accident rates at each locations were then compared to their respective critical rates.

As shown in Table 6.18, sixteen (16) of the "problem" locations exceeded their critical rates, indicating that localized safety problems may be present. Additionally, although not reflected in Table 6.18, two of the "typical" intersections also exceeded their critical rates. The roadways that include at least one of the sixteen (16) problem locations were identified and mapped. These roadways are:

- Gettysburg Avenue
- Dorothy Lane
- Brandt Pike
- SR 725
- Woodman Drive
- Spring Street

### *Local Priorities*

A meeting was held with agency traffic engineering staff throughout the four county study area, including municipal, county and Ohio Department of Transportation personnel. The purpose of the meeting was to identify arterial street segments which are considered high priorities for ITS projects from the perspectives of the traffic engineers responsible for these facilities. The meeting generated a list of priority locations for each of the four counties, shown in Table 6.19.

## TABLE 6.18
## ARTERIAL STREET INTERSECTION ACCIDENT ANALYSIS

| Intersection | Existing Traffic Control | (1994) Entering Daily Volume(2) | Average # Accident&r. | Accident Rate | Average Areawide Rate | Critical Rate | Is Rate > Critical Rate |
|---|---|---|---|---|---|---|---|
| 1) Brandt Pike/Chambersburg Rd. | Signal | 39,600 | 49 | 3.39 | 1.5 | 2.0 | Yes |
| 2) Gettysburg/Hoover Ave. | Signal | 37,300 | 43 | 3.16 | 1.5 | 2.0 | Yes |
| 3) Brandt Pike/Fishburg Rd. | Signal | 37,100 | 38 | 2.81 | 1.5 | 2.0 | Yes |
| 4) Gettysburg Ave./3rd St. | Signal | 38,950 | 36 | 2.53 | 1.5 | 2.0 | Yes |
| 5) Old Troy Pike/Taylorsville Rd. | Signal | 36,750 | 36 | 2.68 | 1.5 | 2.0 | Yes |
| 6) Col. Glenn Hwy./National Rd. | Signal | 41,350 | 34 | 2.25 | 1.5 | 2.0 | Yes |
| 7) Dayton-Xenia/North Fairfield | Signal | 33,750 | 33 | 2.68 | 1.5 | 2.0 | Yes |
| 8) Gettysburg Ave./James McGee Blvd. | Signal | 37,100 | 33 | 2.44 | 1.5 | 2.0 | Yes |
| 9) Dorothy Lane/ Wilmington Pike | Signal | 65,800 | 32 | 2.03”’ | 1.5 | 1.89 | Yes |
| 10) Helena St./Riverside Dr. | Signal | 33,700 | 31 | 2.52 | 1.5 | 2.0 | Yes |
| 11) Keowee St./3rd St. | Signal | 50,150 | 31 | 1.69 | 1.5 | 1.94 | No |
| 12) Needmore Rd./N. Dixie Dr. | Signal | 49,250 | 31 | 1.72 | 1.5 | 1.95 | No |
| 13) Dorothy Lane/Woodman Dr. | Signal | 47,400 | 45 | 2.27”’ | 1.5 | 1.96 | Yes |
| 14) Ohio 725/Ohio 741 | Signal | 72,350 | 42 | 1.60 | 1.5 | 1.87 | No |
| 15) Ohio 725/Byers Rd. | Signal | 55,800 | 35 | 1.72 | 1.5 | 1.92 | No |
| 16) Patterson/Woodman | Signal | 37,900 | 36 | 2.64”’ | 1.5 | 2.0 | Yes |
| 17) Forrer/Smithville | Signal | 31,750 | 27 | 2.32”’ | 1.5 | 2.0 | Yes |
| 18) N. Spring St./E. North St. | Signal | 28,700 | 32 | 3.09 | 1.5 | 2.08 | Yes |
| 19) S. Spring St./E. High St. | Signal | 17,800 | 26 | 4.00 | 1.5 | 2.21 | Yes |
| 20) E. Main St./N. Burnett Rd. | Signal | 21,700 | 26 | 3.32 | 1.5 | 2.15 | Yes |

(1) “High Accident Locations,” City of Kettering (1995)
(2) Daily Entering Volumes Obtained from Traffic Flow Maps.
Source: BRW, Inc., April 1997

#24387

**TABLE 6.19**
**LOCAL TRAFFIC ENGINEERING ARTERIAL STREET PRIORITIES**

Montgomery County

- SR 202 in Huber Heights from south to north corporation line
- SR 201 in Huber Heights from south to north corporation line
- Woodman Drive from Linden Avenue to SR 201
- National Road (US 40) from Brown School House Road to Dogleg Road
- SR 48 from US 40 to Garber Road
- Philadelphia Drive from Siebenthaler to Turner

Greene County

- Dayton-Yellow Springs Road in Fairborn from Southlawn Drive to Trebein Road
- SR 444 from SR 844 to I-675
- Dayton-Xenia Road in Beavercreek from west corporation line to Fairfield Road
- US 35 from Fairfield Road to Valley Road

Miami County

- SR 41 from Washington Road to Market Street
- South Market Street from Main Street to West Market Street
- SR 571 from just west of I-75 to Hyattsville Road
- SR 55 from I-75 to Nashville Road
- SR 55 from SR 718 to South Market Street

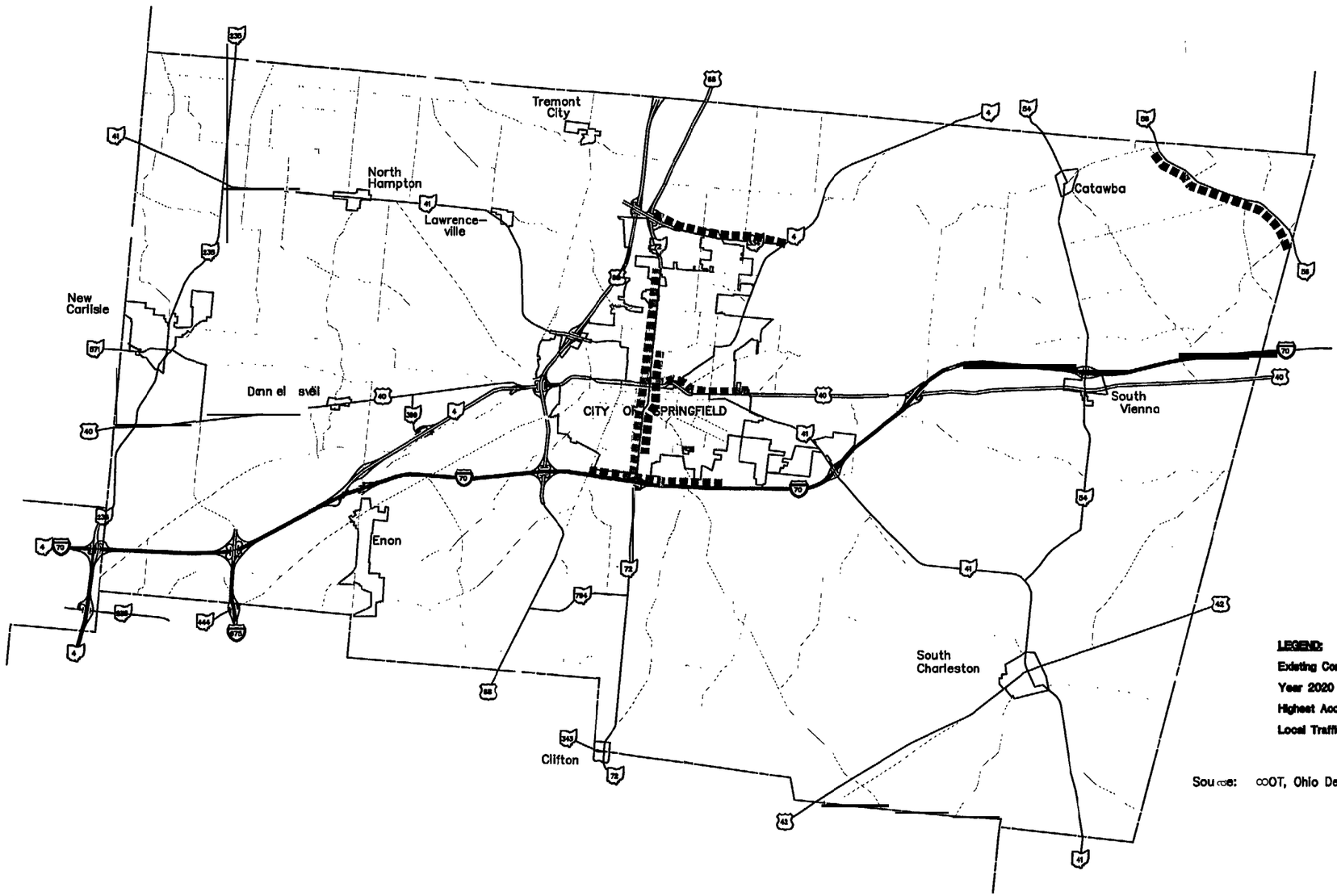
Clark County

- SR 72 North from North Street to Eagle City Road
- SR 72 South from Main South to Leffel Lane
- East Main Street / US 40 East from Limestone Street to East Corporate Line,
- SR 235 between SR 41 and US 40
- Selma Road from SR 72 to Leffel Lane
- Leffel Lane: Springfield - Xenia Road to Burnett Road

*Source: Local County and State Traffic Engineering Staff, April 21, 1997 Meeting*

*Summary of Arterial Issues*

The information data described above was mapped as layers on individual county maps. These maps are shown as Figures 6-7 through 6-10. This information is presented in tabular form in Table 6.20.




**LEGEND:**

| | |
|---|---|
| Existing Congestion (E or F) | |
| Year 2020 Congestion (E or F) | |
| Highest Accident Rate Segments | |
| Local Traffic Engineering Priority | |

Source: ODOT, Ohio Dept. of Public Safety, LJB, Inc. & BRW, Inc. April 1997.

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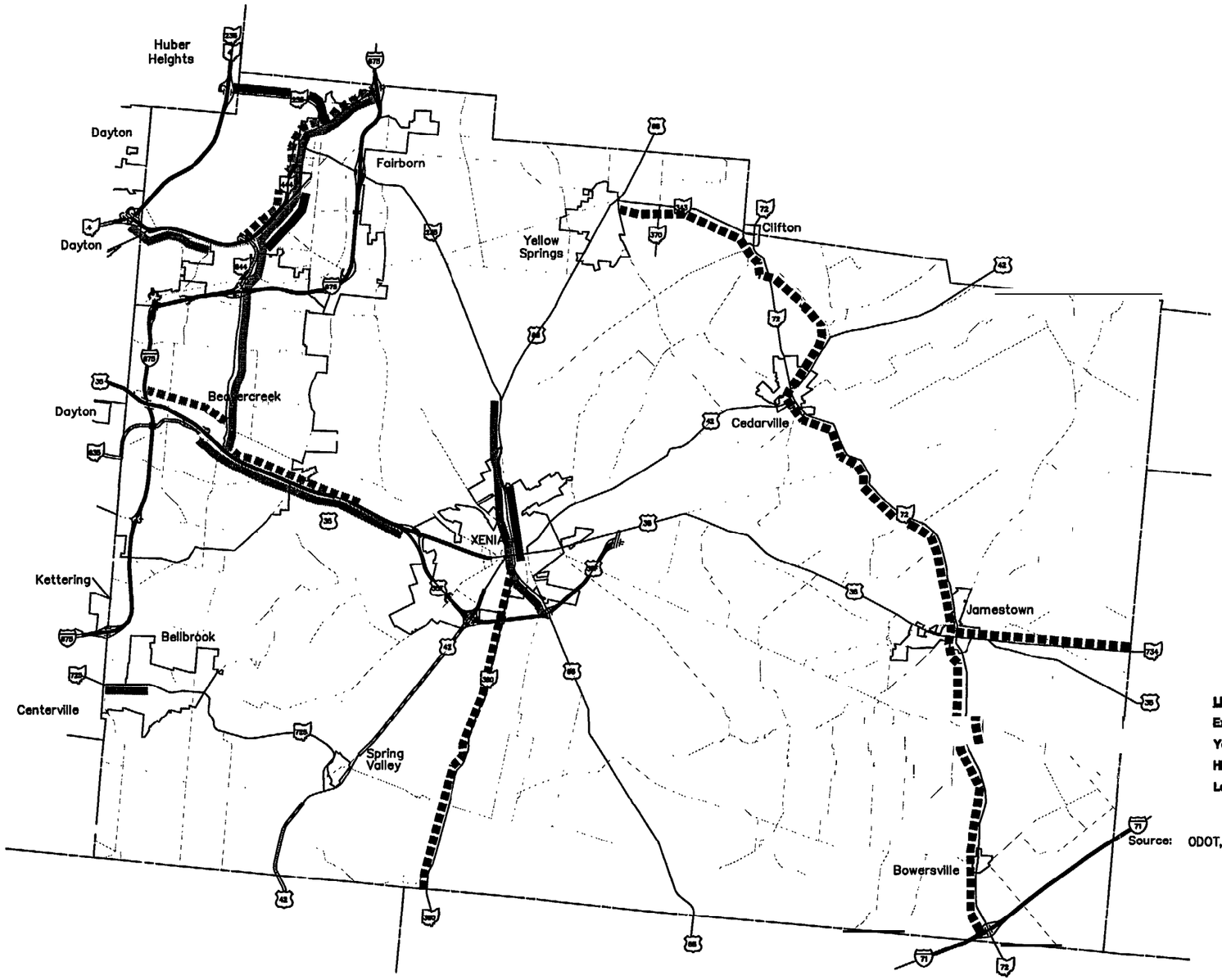
**Figure 6-7**
**ARTERIAL STREET ISSUES**
**CLARK COUNTY**

clark-co.dwg 8-7-97




**LEGEND:**

- Existing Congestion (E or F)
- Year 2020 Congestion (E or F)
- Highest Accident Rate Segments
- Local Traffic Engineering Priority

Source: ODOT, Ohio Dept. of Public Safety, LJB, Inc. & BRW, Inc. April 1997.

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**Figure 6-8**

## ARTERIAL STREET ISSUES GREENE COUNTY

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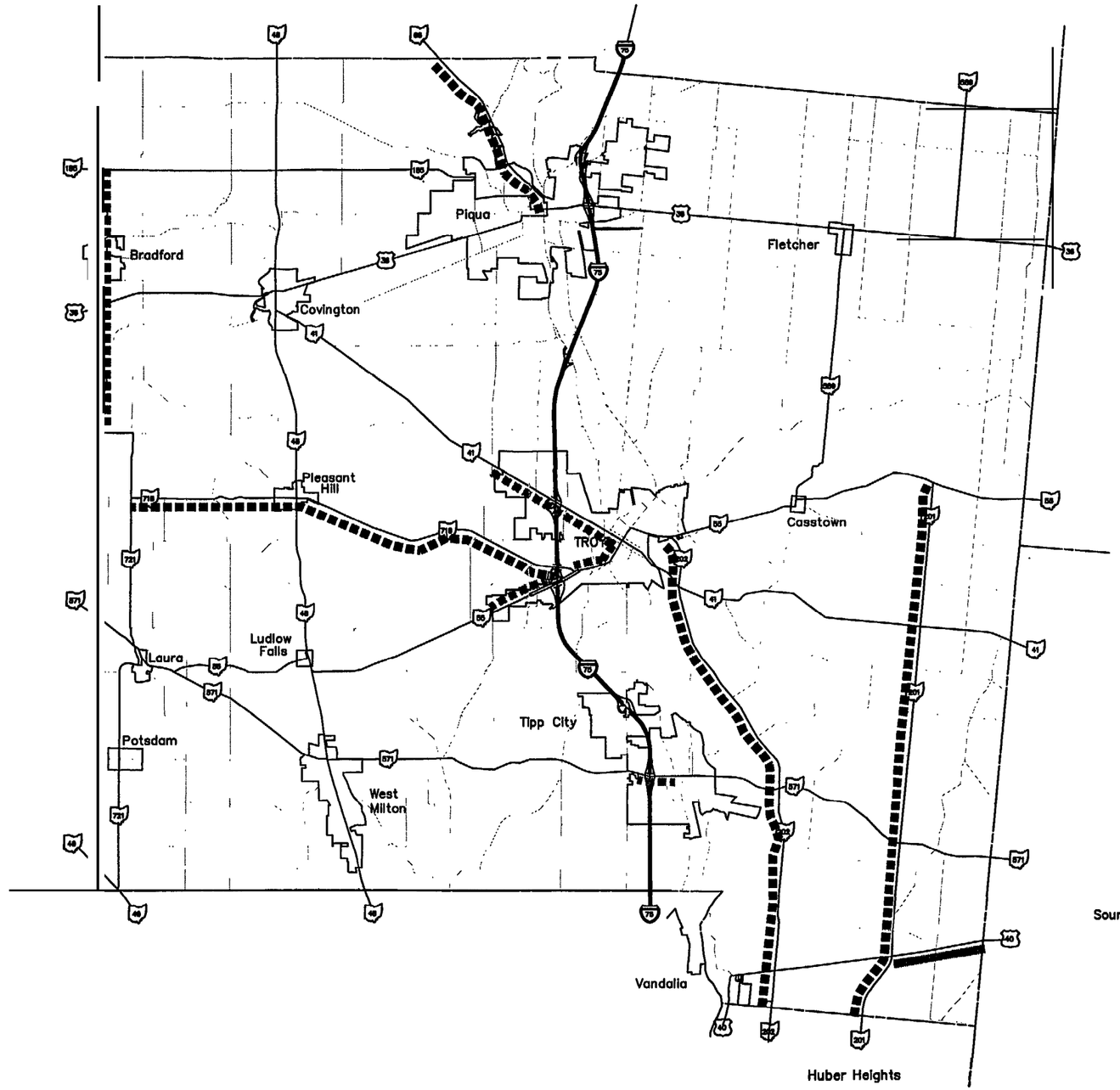


NORTH
Scale: 1" = 10,000'

**LEGEND:**

- Existing Congestion (E or F)
- Year 2020 Congestion (E or F)
- Highest Accident Rate Segments
- Local Traffic Engineering Priority

Source: ODOT, Ohio Dept. of Public Safety, LJB, Inc. & BRW, Inc. April 1997.

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**Figure 6-9**
**ARTERIAL STREET ISSUES**
**MIAMI COUNTY**

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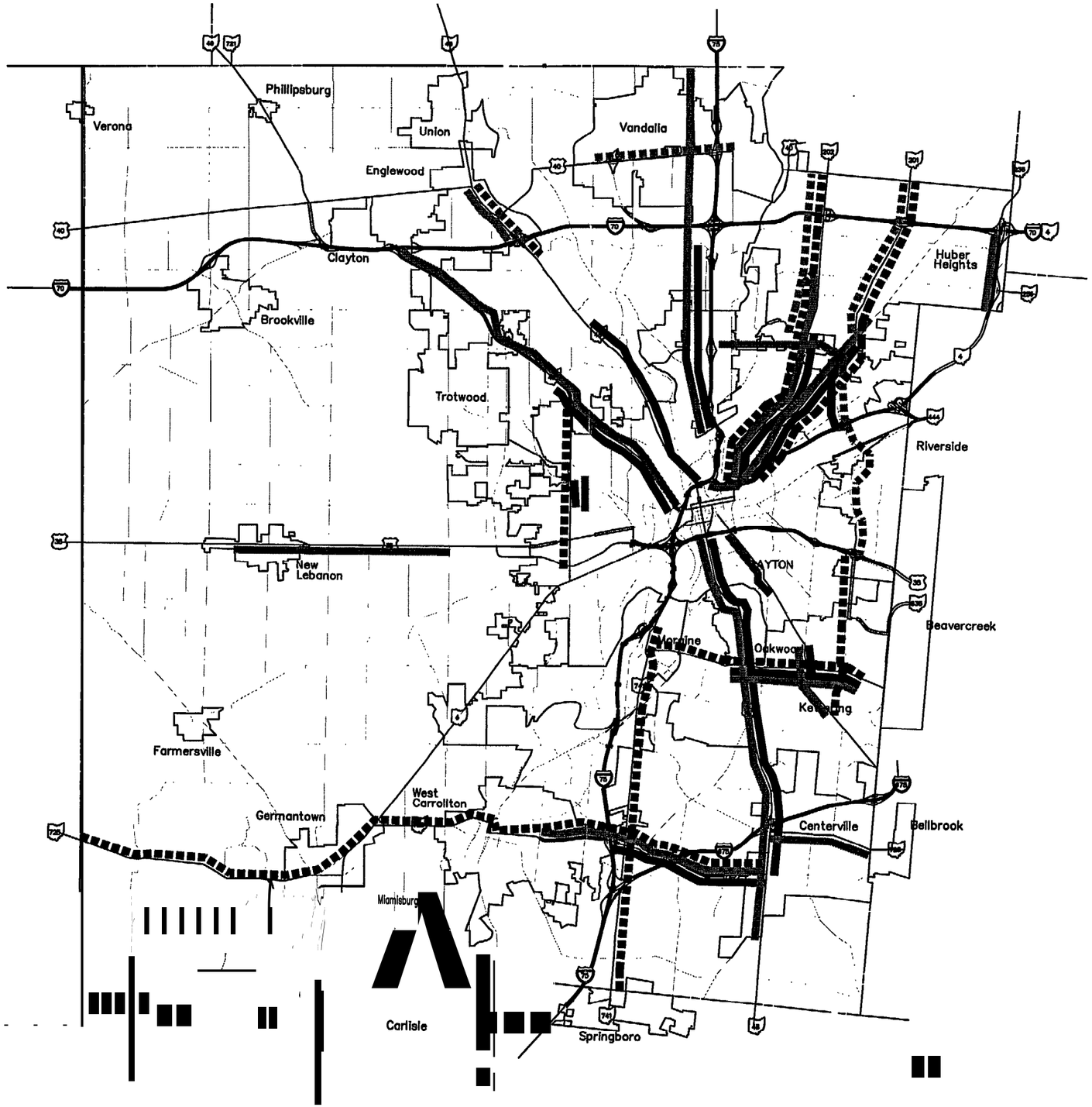


NORTH
Scale: 1" = 10,000'

**LEGEND:**

- Existing Congestion (E or F)
- Year 2020 Congestion (E or F)
- Highest Accident Rate Segments
- Local Traffic Engineering Priority

Source: 0001, Ohio Dept. of Public Safety, LJB, Inc. & BRW, Inc. April 1997.

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**Figure 6-10**
**ARTERIAL STREET ISSUES**
**MONTGOMERY COUNTY**

montg-aa.dwg 8-7-97

**TABLE 6.20**
**SUMMARY OF ARTERIAL STREET ISSUES**

| County | Roadway | Segment (1) | Existing Congestion (2) | Forecasted Congestion (3) | "Critical" Accident Rate Intersection(s) (4) | Local Priority (5) |
|---|---|---|---|---|---|---|
| Clark | US 40 (west to east) | Miami County Line to SR 235 | | X | | |
| | SR 334 (west to east) | US 68 to SR 4 | | | X | |
| | SR 72 (south to north) | Leffell Lane to John Street | | | | X |
| | | John Street to Main Street | | | X | X |
| | | North Street to McCreight Avenue | | | X | X |
| | | McCreight Avenue to Eagle City Road | | | | X |
| | US 40/East Main Street (west to east) | Limestone Street to East Corporate Line | | | | X |
| | SR 235 (south to north) | US 40 to SR 41 | | | | X |
| | Selma Road (south to north) | Leffel Lane to SR 72 | | | | X |
| | Leffel Lane (west to east) | Springfield-Xenia Road to Burnett Road | | | | X |
| | SR 56 | Through Clark County | | | X | |
| Greene | SR 444 (west to east) | Montgomery County Line to Zink Road | | X | | |
| | | SR 844 to Schuster Road/Oak Street | X | X | | X |
| | | Schuster Road/Oak Street to I-675 | | X | | X |
| | SR 235 (west to east) | Montgomery County Line to SR 444 | X | | | |
| | SR 844 (south to north) | I-675 to SR 444 | | X | | |
| | North Fairfield Road (south to north) | US 35 to I-675 | | X | | |
| | US 35 (west to east) | Montgomery County Line to North Fairfield Road | | X | | |
| | | North Fairfield Road to Valley Road | | X | | X |
| | | Valley Road to Xenia Bypass | | X | | |
| | SR 725 (west to east) | Montgomery County Line to Regent Park Drive | | X | | |
| | SR 380 (south to north) | South Greene County Line to US 68 | | | X | |
| | US 68 (south to north) | Xenia Bypass to SR 380 | | X | | |
| | | SR 380 to Xenia North Corporate Line | X | X | | |
| | | Xenia North Corporate Line to SR 235 | | X | | |
| | | Yellow Springs South Corporate Line to Clark County Line | | X | | |
| | SR 72 (south to north) | I-71 interchange to Clifton South Corporate Line | | | X | |
| | SR 343 (west to east) | Entire length | | | X | |
| | SR 734 (west to east) | SR 72 to east Greene County Line | | | X | |

**TABLE 6.20**
**SUMMARY OF ARTERIAL STREET ISSUES**

| County | Roadway | Segment (1) | Existina Congestioi (2) | Forecasted Congestion (3) | "Critical" Accident Rate Intersection(s) (4) | Local Priority (52_ |
|---|---|---|---|---|---|---|
| Miami | SR 721 (south to north) | Just north of right angle turn to SR 185 | | | X | |
| | SR 66 (south to north) | Piqua North Corporate Line to Miami County North Line | | | X | |
| | SR 718 (west to-east) | (SR 721 to SR 55 | | | X | |
| | SR 202 (south to north) | Montgomery County Line to SR 55 | | | X | |
| | SR 201 (south to north) | Montgomery County Line to SR 55 | | | X | |
| | SR 41 (south to north) | Market Street to Washington Pike | | | | X |
| | South Market Street (south to north) | West Market Street to Main Street | | | | X |
| | SR 571 (west to east) | Just west of I-75 to Hyattsville Road | | | | X |
| | SR 55 (west to east) | Nashville Road to I-75 | | | | X |
| | | SR 718 to South Market Street | | | | X |
| | US 40 (west to east) | SR 201 to Miami County East Line | | X | | |
| Montgomery | SR 725 (west to east) | SR 4 to Heincke Road | | | X | |
| | | Heincke Road to I-75 interchange | | X | X | |
| | | I-75 interchange to SR 48 | X | X | X | |
| | | SR 48 to Greene County Line | | X | | |
| | SR 123 (south to north) | Warren County Line to SR 4 | | | X | |
| | SR 741 (south to north) | Warren County Line to SR 725 | | X | X | |
| | | SR 725 to I-75 | | | X | |
| | SR 48 (south to northi | Centerville South Corporate Line to SR 725 | | X | | |
| | | SR 725 to US 35 | X | X | | |
| | | I-75 to Burgess Avenue | X | X | | |
| | | Burgess Avenue to Woolery Lane | | X | | |
| | | Garber Road to I-70 | | | | X |
| | | I-70 to divergence from US 40 | | X | | X |
| | SR 49 (south to north) | I-75 to Wolf Road | X | X | | |
| | | Wolf Road to I-70 | | X | | |
| | Gettysburg Avenue (south to north) | Home Avenue to Oakridge Drive | | | X | |
| | | Oakridge Drive to Hoover Avenue | | X | X | |
| | | Hoover Avenue to Wolf Creek Pike | X | X | X | |
| | | Wolf Creek Pike to Little Richmond Road | | X | X | |
| | | Little Richmond Road to SR 49 | | | X | |
| | US 35 (west to east) | Western part of New Lebanon to Union Road | | X | | |
| | | Wilmington Pike to Smithville Road | X | | | |
| | North Dixie Drive (south to north) | Great Miami River Crossing to Little York Road | X | X | | |
| | | Line | | X | | |

# 7.0 PERFORMANCE CRITERIA

## 7.1 OVERVIEW

Performance aiteria allow the measurement of the success of the ITS user services in meeting user needs. Two sets of performance criteria will ultimately be developed and applied, one set for the ITS User Services and another set pertaining to individual projects. The criteria discussed here pertain to the User Services only.

System performance criteria are categorized here as either quantitative or qualitative and according to the user needs identified as of the highest priority and which are being addressed through the high priority User Services.

## 7.2 QUANTITATIVE CRITERIA

**Incidents/Safety**

Number of Incidents (by type, i.e., work zone, HAZMAT, fatality, etc.)
Incident-Related Delay (by type, i.e., work zone, HAZMAT, etc.)
Incident-Related Fuel Consumption (by type, i.e., work zone, HAZMAT, etc.)
Incident-Related Vehicle Emissions (by type, i.e., work zone, HAZMAT, etc.)
Cost of Incident-Related Fuel Consumption, Injuries
Incident Response Time (by type, i.e., work zone, HAZMAT, etc.)

**Congestion/Capacity**

Freeway and Arterial Flow Rates (per lane)
Freeway and Arterial Speeds
Freeway and Arterial Travel Times
Fuel Consumption
Vehicle Hours of Travel
Vehicle Emissions

**Transit**

Schedule Adherence
Ridership
Mode Split
Fuel Consumption Impacts of Mode Split Changes

**Travel Time Information**

Number of Diverted Trips
Travel Time Impacts of Trip Diversions
Fuel Consumption Impacts of Trip Diversions
Vehicle Emission Impacts of Trip Diversions
Traffic Peaking (Peak Hour Factors)

## 7.3 QUALITATIVE CRITERIA

Interagency / Interjurisdictional Cooperation

- incident response
- construction / maintenance
- signal coordination

Public Perception

- convenience
- effectiveness
- willingness to use
- privacy

Public / Private Partnership Development

# APPENDIX

## October 1996 Miami Valley ITS Newsletter

## User Needs Survey

## Agency Interview Summaries

# October 1996 Miami Valley ITS Newsletter

# The MIAMI VALLEY ITS Times

October 1996 Volume 1: Issue 1

The Newsletter of Intelligent Transportation Systems (ITS) Deployment within Clark, Greene, Miami and Montgomery Counties, Ohio


## * ITS Initiative Announced

The Miami Valley Regional Planning Commission (MVRPC) has initiated the development of an Early Deployment Plan for Intelligent Transportation Systems (ITS) within four of the counties of the Miami Valley (Clark, Greene, Miami and Montgomery). The plan will consider multiple transportation modes (including roadways and transit), intermodal connections and freight as well as passenger movement. The combination of conventional and advanced technologies included in the plan will improve the safety and efficiency of transportation systems and reduce the adverse environmental impacts of travel.

## * The Problem

Traffic congestion costs the nation an estimated $100 billion each year in lost productivity. Traffic accidents, many caused by congestion itself. drain away another $100 billion per year and cause the loss of well over 40.000 lives and five million injuries per year. Each year, trucks. buses and automobiles idle in traffic and waste billions of gallons of fuel and emit tons of pollutants.

The Miami Valley transportation system stands to benefit greatly through the application of ITS. There are a number of existing transportation system "problem areas". including the I-70/1-75 interchange, the l-675 and North Fairfield Road/Colonel Glenn Highway area and the 1-75 and I-675 at SR725 area, where congestion and safety are serious issues. Additionally, Wright-Patterson Air Force Base (the largest on-site employer in the state), heavy truck traffic on I-70 and I-75, reliance of the auto industry and suppliers on just-in-time truck deliveries, and congestion constraints in the EG and G Mound Applied Technologies reuse area create special transportation needs.

## * The Objective

MVRPC has identified the Intelligent Transportation Systems concept as a potentially necessary part of an overall Miami Valley transportation plan. Although ITS includes many conventional approaches to meeting transportation needs, such as the coordination of traffic signals, its regional, multi-modal and integrated approach to transportation technology make it an important new tool. The primary objectives of ITS initiatives are:

- To reduce travel delay.
- To improve the efficiency of moving people and goods.
- To promote interjurisdictional cooperation.
- To reduce accidents, energy consumption and air quality degradation.
- To integrate highway and transit solutions and develop a balanced, integrated transportation management system.
- To develop a system to rapidly detect and respond to incidents.

* To collect traffic data in an efficient. real-time manner: to share traffic data among operating agencies and the traveling public: and to develop a data base integrating incident planning. special events, travel trends. system conditions and capital programming.

* To develop a systematic implementation plan that is cost effective to deploy. operate and maintain.

**YOU'RE INVITED**

# Miami Valley ITS Forum

**November 7, 1996.**
**1:00-3:30 pm**

**Conference Room 300**
Miami Valley Regional Planning Commission

**(See the insert for details)**

**THE MIAMI VALLEY ITS EDP TEAM**

**The Miami Valley ITS EarlyDeployment Plan Team consists of a Policy Committee that provides overall project oversight and direction; a Technical Committee that provides input on specific technical issues and provides broader transportation stakeholder representation; and a consultant team which operates under the direction of the commitees.**

### Policy Committee

Clark County-Springfield Transportation Coordinating Committee
City of Dayton
Federal Highway Administration
City of Kettering
Miami Valley Regional Planning Commission
Ohio Department of Transportation

### Technical Committee

Butler Township
City of Beavercreek
City of Centerville
Clark County
Clark County-Springfield Transportation Coordinating Committee
City of Dayton
City of Englewood
City of Fairborn
Federal Highway Administration
Greene County
Harrison Township
City of Huber Heights
Jet Express
City of Kettering
Miami Countv
Miami County Community Action Council
Miami Township
Miami Valley Regional Planning Commission
Miami Valley Regional Transit Authority
Montgomery County
City of Moraine
Ohio Department of Transportation
City of Piqua
City of Springfield
Springfield Bus Company
City of Troy
City of Vandalia
Washington Township
City of West Carrollton
City of Xenia

### Consultant Team

BRW, Inc.
Battelle Memorial Institute
CH2M Hill
Lockwood, Jones & Beals. Inc.
TEC Engineering Inc.

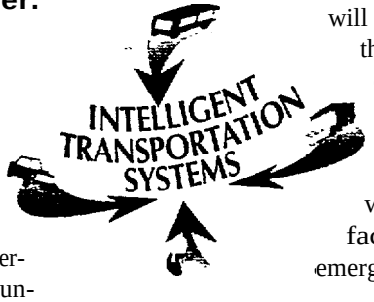
# ITS Intelligent Transportation System

ITS is a major national initiative to apply proven information, communication and control technologies to surface transportation to improve its efficiency and reduce its negative impacts.

On-December 18, 1991, the Intermodal Surface Transportation Efficiency Act of 1991 was signed into law. The purpose of the act is clearly enunciated in its statement of policy:

**"To develop a National Intermodal Transportation System that is environmentally sound, provides the Foundation For the nation to compete in the giobal economy and will move people and goods in an energy efficient manner."**

One of the fundamental approaches used by the Federal Highway Administration and other ITS proponents to develop the concept of ITS has been the identification of 30 ITS user services. organized into seven "bundles." These bundles are summarized as follows:




### * Travel and Transportation Management

A cornerstone of ITS, services in this bundle collect and process information about the surface transportation system and supply this information, in various and appropriate forms, to traffic control devices, such as traffic signals, and to travelers. Services include traffic control, incident management and en-route travel information.

### +:* Travel Demand Management

This bundle includes services that support policies and strategies aimed at reducing vehicle demand by developing and encouraging modes of travel other than the single occupant vehicle. These services promote alternative modes by providing timely intermodal information prior to trip making and by making ride sharing and transit more convenient.

### * Public Transportation Operations

These systems improve the efficiency of transit operations through the use of computer-aided scheduling and real-time tracking of vehicles. These systems will also improve service and safety by providing en-route transit information to passengers. scheduling transit service on-demand and increasing the security of all transit facilities.

### * Electronic Payment Services

Automatic collection of transit fares and parking fees will improve the flow of vehicles and reduce congestion.

### * Commercial Vehicle Operations

Trucks and buses operating in the area will have improved operations through the use of electronic clearance for weight and safety compliance. On-board systems will monitor safetywhile other systems will track movements and facilitate scheduling and emergency management.

### ● :+ Emergence Management

Systems to detect, notify and support response to emergency situations will improve the safety of transportation systems. Emergency vehicles will be able to reach an emergency as quickly as possible with these new systems.

### ● Advanced Vehicle Control and Safety Systems

Automatic systems will assist drivers in avoiding collisions using detection and warning devices. Drivers will be better informed and aware of safety problems with these systems. As detection and control technology advances, systems will eventually allow fully automated control on freeways.

## Early Deployment Study

The International Surface Transportation Act (ISTEA) of 1991 designated certain transportation funds to be used for ITS Early Deployment project. These Early Deployment funds are available to major metropolitan areas and intercity corridors which have the following characteristics:

- An understanding of local needs.
- A demonstrated commitment to good transportation management.
- A cooperative relationship between agencies.
- A general understanding of the type of ITS services which will address local needs.

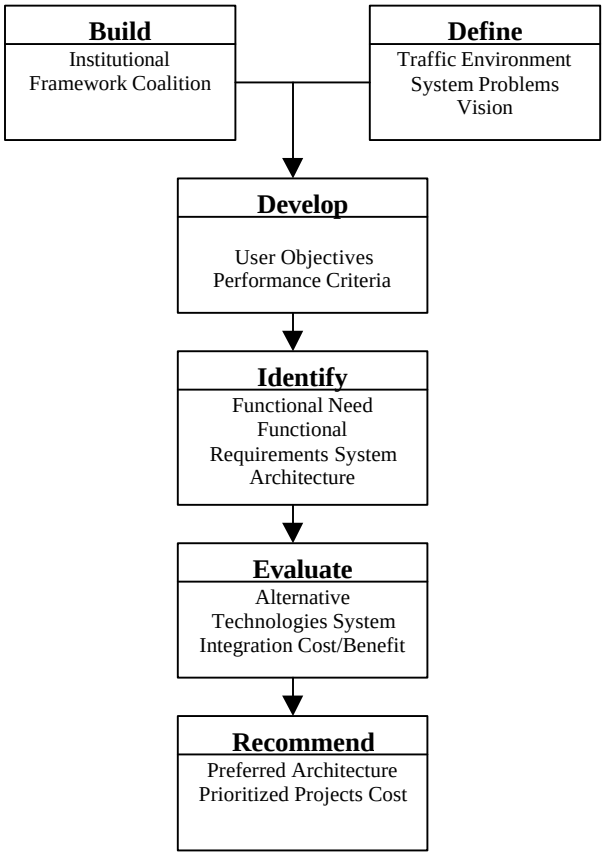
MVRPC has applied for an received federal funds to begin the Early Deployment process. The first step in this process is to conduct a study to develop the ITS Early Deployment Plan for the Miami Valley. This plan must be integrated with the state and metropolitan transportation plans to demonstrate an understanding of all relevant issues and concerns. According to the FHWA, the Early Deployment Plan must:

- Identufy and document applicable ITS user services.
- Establish system performance criteria.
- Assess functions and requirements of the system
- Identify and evaluate potential technologies on the basis of performance, compatibility, flexibility and cost.
- Assess potential funding and implementation options including use of private sector resources.
- Identify time frames for implementation

MVRPC has initiated development of an ITS Early Deployment Plan which will analyze and recommend deployment of ITS user services based on the needs and opportunities of the study area which consists of four of the countries in the Miami Valley (Clark, Greene, Miami and Montgomery). The overall Early Deployment Plan effort includes there major elements:

- User Service Plan
- Strategic Deployment Plan
- Coordination and Outreach

The User Service plan documents current and projected transportation system deficiencies, identifies ITS opportunities and prioritizes user services for deployment. The Strategic Deployment Plan portion of the Early Deployment Plan identifies the system architecture for the regional ITS (the architecture shows how different pieces of the system fit together), evaluates specific technology options and prioritizes specific projects to deliver desired user services. The process folowed for these two steps is shown in the flow chart,




The Coordination and Outreach component of the Miami Valley Early Deployment Plan is critical t the acceptance and success of the plan. The outreach plan utilizes a variety of mechanisms to inform transportation stakeholders, including public and private interests, and to incorporate their input into the Early Deployment Plan. The elements of the Miami Valley ITS Coordination and Outreach plan are summarized graphically below.

# You are invited . . .

to participate in a workshop/forum of ITS issues in the Miami Valley. The purpose of the forum is to foster two-way exchange and active involvement in the development of an Early Deployment Plan for Clark, Greene, Miami and Montgomery Counties. A broad range of agencies and interests are requested to attend this forum to ensure proper representation from all transportation system users..

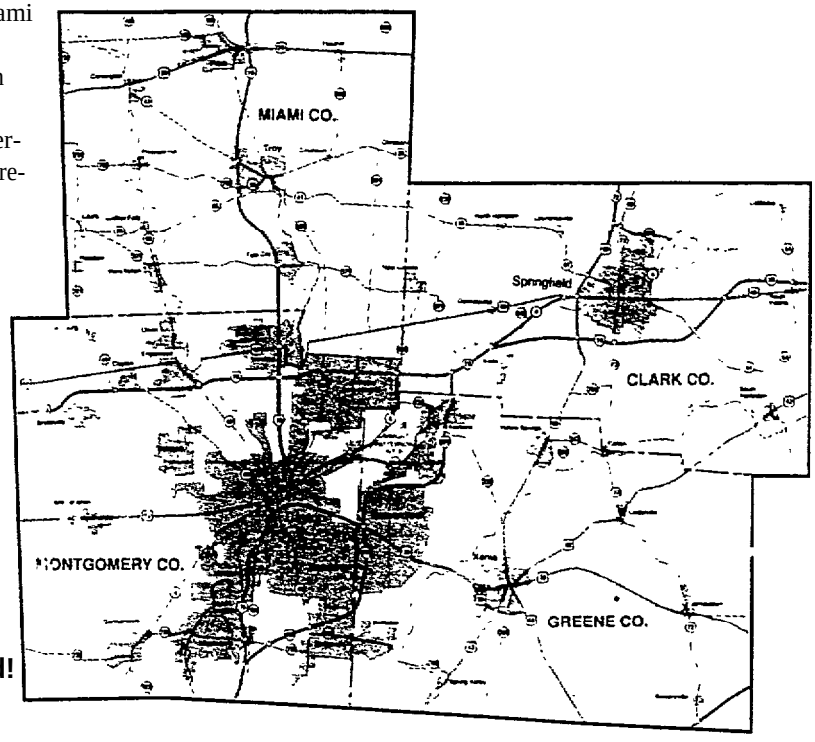
The forum will include:

- Presentation of the process to develop the Early
- Deployment Plan; its vision, goals and objectives.
- Presentation of program plan and schedule.
- Solicitation of local issues such as impacts on traffic, safety, economic benefits, land use and commercial carriers.

The forum will be held at 1:00 pm on Thursday, November 7. 1996, in Conference Room 300, at The Miami Valley Regional Planning Commission.

**Please mark your calendars and plan to attend!**

**Please RSVP to hlatt Burt at 612/373-6383 by October 31, 1996.**




## Miami Valley ITS Study

### For Further Information:

**MVRPC**
- Anne Hassoun 513/ 223 6323
- Scott Glum 513/223-6323

**Clark County-Springfield Transportation Coordinating Committee:**
- Walter Szczesny 513 324-7752

**BRW,Inc.(Project Consultant to MVRPC):**
- Jeff Benson 612/373-6444
- Matt Burt 612/373-6383

MIAMI VALLEY ITS

**EARLY DEPLOYMENT PLAN**

**Miami Valley ITS**
**Early Deployment Plan**
**400 Miami Valley Tower**
**40 W est Fourth Street**
**Dayton, OH 45402**

EARLY DEPLOYMENT PLAN

# WORKSHOP / FORUM NOTICE

**Your participation is requested at a workshop to determine the direction of the Miami Valley ITS Early Deployment Plan**

**November 7, 1996**
**1:00 - 3:30 PM**
**Miami Valley Regional Planning Commission**
**Conference Room 300**
**40 West Fourth Street**
**Dayton, Ohio**

The Miami Valley RegionaI Planning Commission (MVRPC) has received funds for the development of an Early Deployment Plan for Intelligent Transportation Systems (ITS) in the four counties of Clark, Greene, Miami and Montgomery. The Miami Valley has the opportunity to use advanced technology to improve the efficiency, safety and convenience of the transportation system.

As part of the planning process, your input is needed to determine:

*Transportation Problems of the Miami Valley
*Transportation Priorities of the Miami Valley
*Recommendations for Projects

The purpose of the workshop is to explain the Miami Valley ITS Early Deployment Plan, the ITS vision for the Miami Valley, overview of ITS capabilities and to solicit your input to the planning process. This workshop is for concerned transportation and related professionals in Clark, Greene, Miami and Montgomery Counties.

**Please plan to attend this important workshop. Feel free to distribute this invitation to anyone you feel should participate.**

*PLEASE RSVP TO MATT BURT OF BRW, Inc. at 612-373-4383 BY OCTOBER 31,1996*

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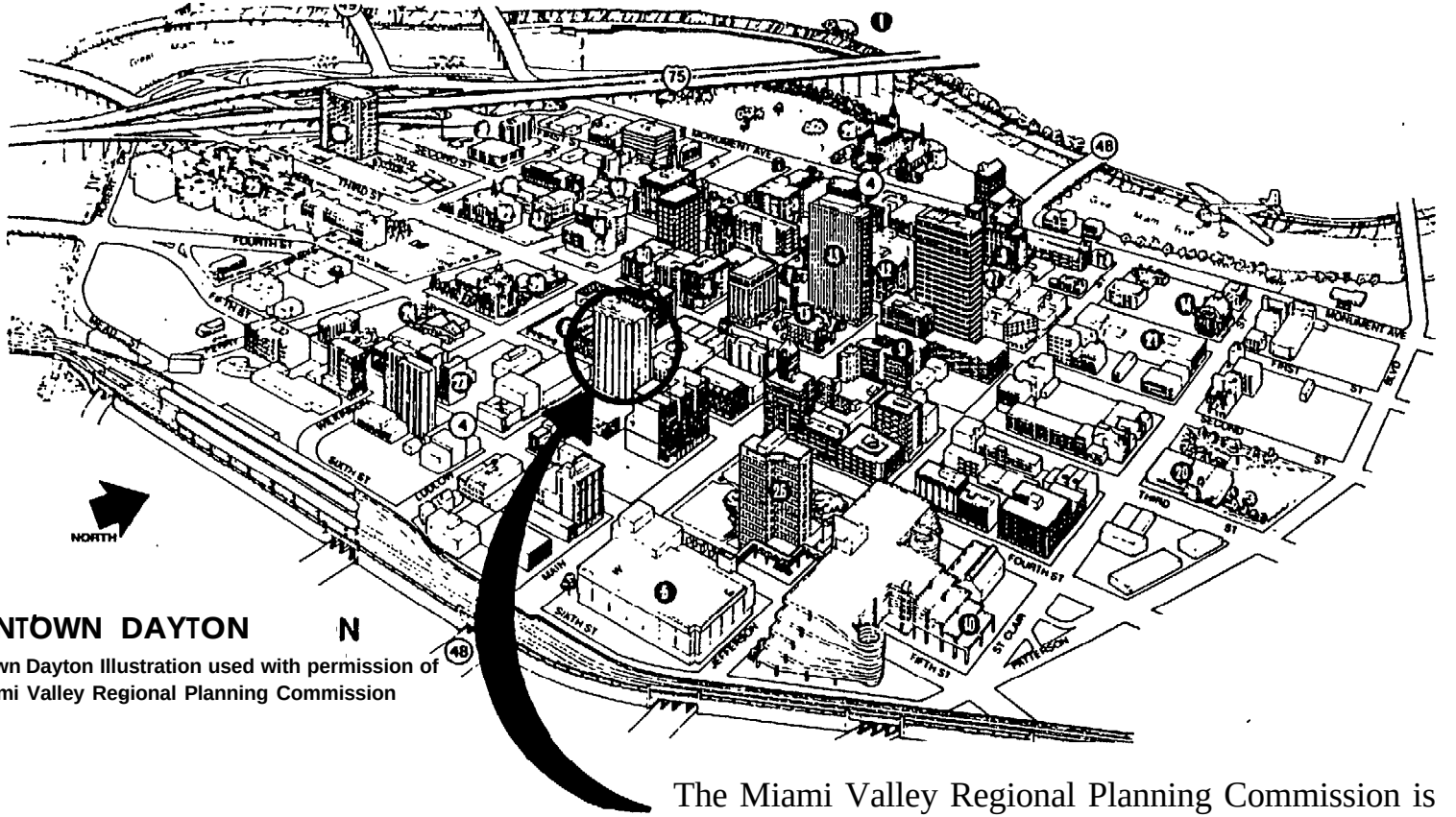
*For further information contact*

***MVRPC: Anne Hassoun or Scott Glum at (513)223-6323***
***Clark County-Springfield Transportation Coordinating Committee: Walt Szczesny at 513-324-7752***
***BR W, Inc.: Matt Burt at 632-373-6383***

MIAMI VALLEY REGIONAL PLANNING COMMISSION
400 MIAMI, VALLEY TOWER
40 WEST FOURTH STREET
DAYTON, OH




**DOWNTOWN DAYTON** N

Downtown Dayton Illustration used with permission of
The Miami Valley Regional Planning Commission

The Miami Valley Regional Planning Commission is located on the southeast corner of Fourth and Ludlow Streets. The adjacent Miami Valley Tower Parking Garage is under construction and parking is limited. Off-street surface parking is available immediately to the south, southwest and east of the Miami Valley Tower. Parking garages are located to the north, on either side of Ludlow Street between Third and Fourth Streets.

MIAMI VALLEY ITS

EARLY DEPLOYMENT PLAN

# TRANSPORTATION IN THE MIAMI VALLEY: *CHALLENGES AND OPPORTUNITIES*

***Hoping to find a bargain at the Hara Arena Boat Show, a young couple heads north on 1-75 in their pickup truck Approaching downtown Dayton, they encounter long lines of stopped vehicles, delayed due to an accident at "Malfunction Junction ". Unsure of how to get back to the interstate if they exit to detour, the couple smolders in the traffic jam wondering if their dream boat has been sold***

***A. disabled Senior living in Kettering would like to use the RTA's Project Mobility demand-response paratransit service to get to the Greyhound bus station on Fifth Street in Dayton. She plans to use the Greyhound bus to visit her daughter's family in Columbus. She'd like to be able to call Project Mobility and have all the arrangements made for her --paying one fare to one provider and arriving at the bus station at the right time to make connections.***

***Swerving to avoid a stalled car, a truck carrying hazardous materials from the EG and G Mound Applied Technologies facility jack-knifes at the l-75/1-675 interchange, less than a mile from the crowded Dayton Mall. Arriving first on the scene, law enforcement personnel are not immediate& aware of the specific material carried in the truck and the proper handling procedures.***

***On a snowy winter afternoon, a business man is returning to his Springfield home from downtown Dayton. Driving coutiously due to the blowing snow conditions, he is still moving too quickly to avoid hitting the iast car in a long queue of stopped vehicles on a span of I- 70 where strong winds have whipped up 3-foot snow drifts and stopped unsuspecting motorists.***

***Late on a cold and blustery January night a Springfield North High School student is enroute from a fast food restaurant near the Upper Valley Mall where he has worked the graveyard shift. Heading north on U.S. 68 to his home in suburban norrh Springfield, he has a flat tire. He has no spare tire, no way to call for help and the nearest phone is several miles away.***

***An NCR worker settles back for an early morning bus ride from his home in Centerville to downtown Dayton on RTA Route 14. His morning daydreams quickly turn to annoyance as he realizes that his bus has joined the end of a long line of vehicles at an intersection in Oakwood. "Why should buses have to wait in the same long lines as people who are driving alone? " he wonders as he anticipates a late arrival to work.***

The application of Intelligent Transportation Systems holds tremendous promise for realizing early and very visible benefits to individual users, benefits to the transportation system and benefits to society. By illustration, all of the scenarios described above stand to benefit by deployment of various ITS technologies.

By providing accurate, timely travel information, both before trips and en route travelers can be alerted to dangerous roadway conditions and congestion, allowing them to select alternative paths. Automatic vehicle location, "smart" fare collection and transit vehicle signal priority technology can reduce some of the hurdles which cause travelers to reject transit as an option or which diminish its potential. Personal security or "mayday" devices help insure that help reaches those who need it. Hazardous materials tracking technology can allow quick and highly accurate identification of the materials involved in a particular accident.

The Miami Valley ITS Early Deployment Plan will develop a comprehensive, multi-modal and multi-jurisdictional regional approach to the deployment of ITS. The study will include an assessment of existing and projected transportation system deficiencies and opportunities as well as an extensive outreach program utilizing workshops, newsletters, surveys and interviews to help ensure that the plan is responsive to the needs of a broad range of transportation stakeholders.

# User Needs Survey

MIAMI VALLEY ITS
EARLY DEPLOYMENT PLAN

# User Needs Survey

## 1. Respondent Identification .

**Please provide the following information about yourself:**

**Name** _____

**Agency** _____

**Title** _____

**Address** _____

**City** _____ **State**_____ **ZIP** _____

**Phone** _____ **FaX** _____

### Please Indicate Your Affiliation:

**State Government** _____
**Regional Agency** _____
**Local Government** _____
**Commercial Operation** _____
**Private Citizen** _____
**Other** _____

### Please Indicate Transportation Mode You Represent:

**Transit** _____
**Highways** _____
**Trucking** _____
**Aviation** _____
**Intercity Bus** _____

# 2. Problem Areas

**Please rank the severity of each problem area listed based on the scale below. Leave the** ranking **blank if you do not have an opinion about the problem.**

**1 - Not a Problem**
**2 - Occasional Problem**
**3 - General Problem**
**4 - Significant Problem**
**5 - Very Significant Problem**

| Problem Area | | Ranking | | | | |
|---|---|---|---|---|---|---|
| **Highway** | Congestion | 1 | 2 | 3 | 4 | 5 |
| | Safety | 1 | 2 | 3 | 4 | 5 |
| | Travel Time | 1 | 2 | 3 | 4 | 5 |
| | Travel Time Information | 1 | 2 | 3 | 4 | 5 |
| | Road and Weather Condition Information | 1 | 2 | 3 | 4 | 5 |
| | Access | 1 | 2 | 3 | 4 | 5 |
| | Noise | 1 | 2 | 3 | 4 | 5 |
| | Air Pollution | 1 | 2 | 3 | 4 | 5 |
| | Carpooling Coordination | 1 | 2 | 3 | 4 | 5 |
| | Emergency Response | 1 | 2 | 3 | 4 | 5 |
| | Personal Security | 1 | 2 | 3 | 4 | 5 |
| | Other _____ | 1 | 2 | 3 | 4 | 5 |
| **Local Bus Systems** | Travel Time | 1 | 2 | 3 | 4 | 5 |
| | Safety / Security | 1 | 2 | 3 | 4 | 5 |
| | Status Information, (i.e., *Bus Location)* | 1 | 2 | 3 | 4 | 5 |
| | Schedule and Route Information | 1 | 2 | 3 | 4 | 5 |
| | Scheduling | 1 | 2 | 3 | 4 | 5 |
| | Fare Collection | 1 | 2 | 3 | 4 | 5 |
| | Fleet Management | 1 | 2 | 3 | 4 | 5 |
| | Operations | 1 | 2 | 3 | 4 | 5 |
| | Other _____ | 1 | 2 | 3 | 4 | 5 |
| **Intercity Bus/Rail** | Travel Time | 1 | 2 | 3 | 4 | 5 |
| | Safety / Security | 1 | 2 | 3 | 4 | 5 |
| | Status Information | 1 | 2 | 3 | 4 | 5 |
| | Schedule and Route Information | 1 | 2 | 3 | 4 | 5 |
| | Scheduling | 1 | 2 | 3 | 4 | 5 |
| | Operations | 1 | 2 | 3 | 4 | 5 |
| | Fleet Management | 1 | 2 | 3 | 4 | 5 |
| | Other _____ | 1 | 2 | 3 | 4 | 5 |
| **Commercial Vehicles** | Safety Inspections | 1 | 2 | 3 | 4 | 5 |
| | Weight Checking | 1 | 2 | 3 | 4 | 5 |
| | Regulations | 1 | 2 | 3 | 4 | 5 |
| | Hazardous Material Response | 1 | 2 | 3 | 4 | 5 |
| | Hazardous Material Routing | 1 | 2 | 3 | 4 | 5 |
| | Fleet Routing | 1 | 2 | 3 | 4 | 5 |
| | Other _____ | 1 | 2 | 3 | 4 | 5 |

Please identify the top 5 transportation problems in your area and provide a short description of the problem. Also provide any concerns or issues you may have related to these problems.

Problem:
Description:

Problem:
Description:

Problem:
Description:

Problem:
Description:

Problem:
Description:

# 3. User Needs

ITS user services are designed to solve transportation problems with the application of advanced technology systems and innovative institutional arrangements. The ITS National Program Plan identifies 29 user services grouped in six general categories. An additional service, Highway-Railroad Intersection, has recently been added and has not been assigned to a category. Please read the brief descriptions of these services and then rate them based on the following scale. Consider the needs of the entire Miami Valley and all users when rating the services. Leave the ranking blank if you do not have an opinion about the service.

1 - Very Low Priority
2 - Low Priority
3 - Average Priority
4 - High Priority
5 - Very High Priority

_____ **Highway-Railroad Intersection** - includes technologies to improve the safety of highway railroad crossings.

**TRAVEL AND TRAFFIC MANAGEMENT SERVICES**

_____ **Pre-Trip Travel Information** - Provides information for selecting the best departure time, transportation modes and routes based on real-time status.

_____ **En-Route Driver Information** - Driver advisories, in-vehicle signing and route alternatives for convenience and safety.

_____ **Route Guidance** - Provides travelers with route alternatives and simple instructions on how to reach their destinations.

---------- **Ride Matching and Reservation** - Makes ride sharing more convenient.

_____ **Traveler Services Information** - Provides a business directory, or **"yellow pages"** of service information.

_____ **Traffic Control** - Manages the movement of traffic on streets and highways.

_____ **Incident Management** - Helps public and private organizations quickly identify incidents and implement a response to minimize their effects on traffic.

_____ **Travel Demand Management** - Supports policies and regulations designed to mitigate the environmental and social impacts of traffic congestion.

_____ **Emissions Testing and Mitigation** - Provides information for monitoring air quality and developing air quality improvement strategies.

**ELECTRONIC PAYMENT SERVICES**

_____ **Electronic Payment Services** - Allows travelers to pay for transportation services electronically.

**EMERGENCY MANAGEMENT SERVICES**

_____ **Emergency Notification and Personal Security** - Provides immediate notification of an incident and an immediate request for assistance.

_____ **Emergency Vehicle Management** - Reduces the time it takes emergency vehicles to respond to an incident.

## PUBLIC TRANSPORTATION MANAGEMENT SERVICES

_____ Public **Transportation Management** - Automates operations, planning, and management functions of public transit systems including bus priority systems.

_____ **En-Route Transit Information** - Provides information to travelers using public transportation after they begin their trip.

_____ **Personalized Public Transit** - Flexibly routed transit vehicles offer more convenient service to customers.

_____ **Public Travel Safety** - Creates a secure environment for public transportation patrons and operators.

## COMMERCIAL VEHICLE SERVICES

_____ **Commercial Vehicle Electronic Clearance** - Facilitates domestic and international border clearance, minimizing stops.

_____ **Automated Roadside Safety Inspections** - Facilitates roadside inspections.

_____ **On-Board Safety Monitoring -** Senses the status of commercial vehicle, cargo and driver.

_____ **Commercial Vehicle Administrative Processes** - Provides electronic purchasing of credentials and automated mileage and fuel reporting and auditing.

_____ **Hazardous Material Incident Response** - Provides immediate description of hazardous materials to emergency responders.

_____ **Freight Mobility** - Provides communications between drivers, dispatchers and intermodal transportation providers.

## ADVANCED VEHICLE SAFETY SYSTEMS

_____ **Longitudinal Collision Avoidance** - Helps prevent head-on and rear-end collisions between vehicles, or between vehicles and other objects or pedestrians.

_____ **Lateral Collision Avoidance** - Helps prevent collisions when vehicles leave their lane of travel.

_____ **Intersection Collision Avoidance** - Helps prevent collisions at intersections.

_____ **Vision Enhancement for Crash Avoidance** - Improves the driver's ability to see the roadway and objects that are on or along the roadway.

_____ **Pre-Crash Restraint Deployment** - Anticipates an imminent collision and activates passenger safety systems before the collision occurs.

_____ **Safety Readiness** - Provides warnings about the condition of the driver, the vehicle and the roadway.

_____ **Automated Vehicle Operations** - Provides a fully automated, "hands-off" operating environment.

If you have any concerns or comments about any of the user services, or would like to suggest other priorities for user services, please provide them in the space below.

# 4. Top 5 Ideas

**The main purpose of the Miami Valley Early Deployment Plan is to identify ITS projects that can benefit the entire Miami Valley. On the basis of your knowledge of area problems and possible applications of advanced technology, please suggest up to five ideas that can address area-wide problems or support the development of national ITS applications. Please attach any additional material you feel necessary to describe the ideas.**

**IDEA #1**

**IDEA #2**

**IDEA #3**

**-IDEA #4**

**IDEA #5**

# Agency Interview Summaries

# Local Agency Interviews

**DATE:** 10/2/96

**ATTENDEES:** Dave Beach, City Engineer, City of Beavercreek
Matt Burt, BRW, Inc.

**SUMMARY OF QUESTIONS AND ANSWERS:**

***1. What are the transportation goals of your organization?***

- Immediate objectives are to keep up with growth, to mitigate the impacts of rapid residential and business area growth on the transportation system.

- The City is trying to build out the basic roadway network to serve developments. Most roads are two-lane, former Greene County roads.

- Looking for opportunities to expand the geographic coverage area of the transportation impact fee ordinance passed in 1993. The current ordinance was a result of the development spawned by the construction of the Fairfield Commons Mall and covers roughly the northern one-third of the City. All transportation improvements associated with the mall development were paid by the developer. As additional development occured it became increasingly difficult to associate impacts with specific developments so the impact fee was enacted,

***2. What are the transportation responsibilities of your organization?***

***3. What are the most significant transportation problems in your jurisdiction?***

- The City recently completed the buildout of the main intersection serving the mall to its ultimate configuration. There is now excess capacity during most times but the design is sufficient to serve peak holiday shopping traffic.

- Special events at the Nutter Center create traffic issues. The bridge over I-675 needs an additional southbound lane.

- There is currently a demonstration project being developed to implement an advanced traveler information system (ATIS) for the Nutter Center area. The project could also serve the Fairfield Mall. This project needs to be coordinated with the ITS Early Deployment Plan. The ATIS could represent one of the initial projects of the plan. The MVRPC is currently working on the scope of work for the ATIS RFP now.

- The biggest traffic problem is the Fairfield Commons Mall area. Other problems include the US 35/Fairfield Road intersection, the under-design of Indian Ripple Road and the heavily congested three or four at-grade intersections along US 35 in the Orchard Lane area. The US 35/Fairlield Road intersection is proposed to be upgraded to an interchange. The project is in the final stages of the environmental review process.

- There are no industrial zones in the City and no major truck traffic aside from on US 35.

- Traffic at US 35/I-675 is heavy and icy conditions create problems.

***4. What are your most significant coordination issues working with other organizations to solve area transportation problems?***

- The City is short on staff and so there is little time to do more than the minimum required level of coordination with other agencies.

- The City participates in a three party agreement with Greene County and Fairbom on a traffic signal system at I-675/Colonel Glenn Highway. The City of Fair-born currently monitors the system but Beavercreek will take back its half the system and plans to add two new signals to it.

- The important questions relative to a centralized, regional traffic management center and/or multi-jurisdiction traffic strategies are: who will run it and based on what policies (to whose advantage)?

***5. What Intelligent Transportation System or related technologies is your organization now using?***

- The City has three closed loop traffic signal systems: Fairfield Road (10 signals), Indian Ripple Road (8 signals) and I-675/Colonel Glenn Highway.

***6. What funded plans do you have for new Intelligent Transportation System technologies?***

- The City will add two new signals to the I-675/Colonel Glen Highway closed loop system and will add a new four signal closed loop system elsewhere.

***7. What unfundedprojects or suggestions do you have to address unmet transportation needs using Intelligent Transportation System technologies and/or institutional arrangements?***

- It might be worth considering weather sensing at the US 35/I-675 interchange, where icy conditions pose problems.

- Generally, traveler information applications such as electronic message signs have the most potential.

***8. Other Issues***

- Bob Schroder of Greene County Transportation Planning Department (5 13-376-7480) would be a good person to contact as part of this study. He would be a good source of county-wide information *(he is on the newsletter and survey mailing lists-ed.).*

- Greene County is subject to the E-Check vehicle emissions testing program. There has been resistance, in part due to the fact that the MVRPC air quality model shows that there are exceedances in Greene County but there are no monitors in Greene County to confirm this.

- A task force has just been formed for a corridor study on US 35. Allyn Kuennen (513-223-6323) would be a good person to contact.

- For transit issues, check the Greene County Public Transit Study. There is currently no transit in the

City except for a senior citizen demand-responsive system.

- Commuting out of Beavercreek is primarily to Wright-Patterson Air Force Base.

# Local Agency Interviews

**DATE:** 10/3/96

**ATTENDEES:** Walt Szczesny, Transportation Director, Clark County-Springfield Transportation Coordinating Committee (CCSTCC)
Larry Himes, Assistant Director, CCSTCC
J. Lamar Daniel, Transportation Planner, CCSTCC
Eric Ottoson, Transportation Planner, CCSTCC
Matt Burt, BRW, Inc.

**SUMMARY OF QUESTIONS AND ANSWERS:**

***I. What are the transportation goals of your organization?***

- A major focus for CCSTCC is to implement projects which have already been identified. Funding is needed.

***2. What are the transportation responsibilities of your organization?***

- CCSTCC serves as the metropolitan planning organization and port authority for Clark County.
- A major focus for CCSTCC is to implement the good projects which have already been identified. Funding is needed.
- As Port Authority, CCSTCC operates a 90-mile north-south freight rail line.
- CCSTCC's ridesharing program focuses on work trip commutes to Columbus and Wright-Patterson Air Force Base.

***3. What are the most significant transportation problems in yourjurisdiction?***

- Heavy traffic, including a high percentage of trucks, on I-70 and the impacts of route diversions. Detours off of I-70 are frequent and several alternative routes through the Springfield area (US 40, State Route 4 and US 68) are permanently signed as "Alt. I-70".
- Occasionally heavy traffic volumes in the vicinity of North Bechtle Avenue and State Route 41. Several "big box" retail business have located there and the area continues to grow and congest. There are some lighting and street profile problems in this area as well.
- There are too few grade-separated rail crossings in the City of Springfield. Several trains pass through town every day and cause delays to all vehicles, including transit buses. Traffic impacts are even worse when the trains stop and block crossings for longer periods.

4. ***What are your most significant coordination issues working with other organizations to solve area transportation problems?***

5. ***What Intelligent Transportation System or related technologies is your organization now using?***

   - There is a closed loop signal system in the vicinity of North Bechtle Avenue and State Route 41.

   - Traffic signals on ambulance routes in Springfield have emergency vehicle preemption.

6. ***What funded plans do you have for new Intelligent Transportation System technologies?***

   - Traffic signals along the State Route 4/US 40 one-way pairs through downtown Springfield will be interconnected.

7. ***What unfunded projects or suggestions do you have to address unmet transportation needs using Intelligent Transportation System technologies and/or institutional arrangements?***

   - The Early Deployment Plan should consider long-term communications needs and look for opportunities to realize efficiencies, such as installation of communications needed in the future during existing construction projects.

   - It would be very useful to have some sort of advanced warning for the presence of trains at at-grade crossings. For example, the impacts of delays to transit schedules would be known. It would also be useful to have electronic counters to tally the number of rail cars passing through each crossing.

   - The Early Deployment Plan should consider traveler information for construction and detours on I-70.

   - Park and ride locations should be considered for traveler information.

   - ODOT operates permanent traffic counting stations that are not now automated but should be considered for automation.

   - A project is under consideration to coordinate traffic signals along State Route 72 from US 40 north to Home Road and east on Home Road to Deer Road.

8. ***Other Issues***

   - Navistar is a major employer. They operate a manufacturing facility in Springfield and an assembly plant north of Springfield near the Champaign County line. The company is reputedly considering layoffs and/or closure of the Springfield plant. Currently, oversized height Navistar trucks use Lagonda Avenue/State Route 4 to reach the not-them plant.

   - Most “special events” are held at the Clark County fairgrounds just off of State Route 41, southeast of Springfield. Sheriffs deputies usually perform traffic control and the system works well.

   - Current projects include widenings of Leffel Lane and Upper alley Pike between State Route 41 and US 40. There will be 2 left turn lanes NB to WB on Upper Valley Pike.

# Local Agency Interviews

**DATE:** 10/3/96

**ATTENDEES:** Bob Cecile, County Engineer, Clark County
Matt Burt, BRW, Inc.

**SUMMARY OF QUESTIONS AND ANSWERS:**

***1. What are the transportation goals of your organization?***

***2. What are the transportation responsibilities of your organization?***

- Overall, the main transportation issue is roadway maintenance. There are only a couple of roadway segments where average daily traffic volumes exceed 10,000. The area where congestion problems are most likely is the southwest portion of the County, in the vicinity of 1-70/I-675.

- The County is responsible for 350 miles of County roadways plus 490 miles of township roads. The County operates 14 traffic signals, some of which are fixed time and some of which are traffic actuated.

- Current projects include widenings of Leffel Lane and Upper Valley Pike between State Route 41 and US 40.

- Widening of paved County roads to a minimum of 24 feet of pavement is an on-going objective.

- There are some roadways with old designs that include a lot of curves.

- Arrow boards were used in the past for construction projects but there was concern over the liability involved in directing traffic to another location.

***3. What are the most significant transportation problems in your jurisdiction?***

- Driver behavior is a problem. People drive too fast for County roads, where there are curves and the potential for people or animals to be in the road. People often don't adequately adjust their driving behavior when exiting the interstate environment and entering the County road environment.

- Trucks often use Fairfield Pike to bypass the intersection of US 68 and Springfield-Xenia Road. There have been complaints from properties located along Fairfield Pike. There is a concentration of trucking operations to the north along Yellow Springs Road.

***4. What are your most significant coordination issues working with other organizations to solve area transportation problems?***

***5. What Intelligent Transportation System or related technologies is your organization now using?***

- The County is participating in a geographic information system pilot mapping study.

***6. What funded plans do you have for new Intelligent Transportation System technologies?***

***7. What unfunded projects or suggestions do you have to address unmet transportation needs using Intelligent Transportation System technologies and/or institutional arrangements?***

- Traveler information appears to be the most promising ITS application for the County. Highway advisory radio might make sense.

- The County has a page on the World Wide Web (Internet). It would be nice to have weather and roadway condition information on the page.

***8. Other Issues***

# Local Agency Interviews

**DATE:** 10/2/96

**ATTENDEES:** Kerry Lawson, Traffic Engineer, City of Dayton
Steve Finke, City of Dayton Traffic Engineering Department
Garland Smith, Street Maintenance, City of Dayton Traffic Engineering Department
Matt Burt, BRW, Inc.

**SUMMARY OF QUESTIONS AND ANSWERS:**

1. ***What are the transportation goals of your organization?***

- Safe and efficient movement of people and goods (the City Planning Department does have a document with formal goals and objectives).
- The City attempts to coordinate their goals with those of the Miami Valley Regional Planning Commission's Long Range Plan.
- Development of a transportation network to promote economic development is an important goal.

2. ***What are the transportation responsibilities of your organization?***

3. ***What are the most significant transportation problems in your jurisdiction?***

- There are no major, system-level capacity problems. Capacity problems are generally localized at the intersection level.
- The City is generally satisfied with the level of service maintained through its 110 signal Eagle Monarch centralized traffic signal control system. The city also operates a 70 to 80 signal Transyt closed-loop system.
- Freeway capacity is generally not a problem. Problems occur during incidents. Incident management and traveler information are the two most promising ITS user services for deployment in Dayton.
- One of the hindrances to effective incident management in Dayton is the relative absence of good alternative routes. No effort has been made to develop special incident timing plans on alternative routes because there are so few.
- Locations along I-75 where the number of through lanes is reduced are areas of reoccurring incidents and congestion. Reoccurring congestion/incident hot spots include the junctions of I-75 with State Route 4, US 35 and I-70. North of Route 4 there are some very short acceleration lanes and the roadway design is generally inadequate.
- Maintenance activities on I-75 are a problem due to the heavy traffic volumes and high speeds.

Traffic control includes portable changeable message signs and truck-mounted attenuators. Motorist information in conjunction with work zones is a good project idea.

***4. What are your most significant coordination issues working with other organizations to solve area transportation problems?***

- Construction information is provided to the media via a City public relations person. Information has also been put on cable television. The newspaper generally publishes construction information weekly. Coordination has generally been smooth.

- Coordination with other transportation agencies is generally good on a micro, project level, e.g., coordinating a specific detour. System level coordination however could be improved.

- The City successfully coordinates with other jurisdictions on traffic signal systems. For example, the City has some signals on the City of Kettering system. There is currently no region-wide traffic signal coordination.

***5. What Intelligent Transportation System or related technologies is your organization now using?***

- Centralized traffic signal control systems, electronic accident data base and portable changeable message signs.

- Traffic signal control is traffic responsive. Existing conditions do not warrant more esoteric adaptive control strategies.

***6. What funded plans do you have for new Intelligent Transportation System technologies?***

- The Transportation Improvement Program includes traffic signal hardware upgrades (poles, etc.; not controllers), upgrading of the downtown traffic signal system to a closed-loop system, and replacement of existing signal communications with fiber optic cable.

***7. What unfunded projects or suggestions do you have to address unmet transportation needs using intelligent Transportation System technologies and/or institutional arrangements?***

- Generally, there is not enough traffic congestion to warrant the public relations effort required to successfully implement ramp metering.

- Weather/pavement sensing stations have been submitted to the City's capital funding process. These stations would be located initially on bridges along I-75.

***8. Other Issues***

# Local Agency Interviews

**DATE:** 10/30/96

**ATTENDEES:** Kevin Burch, Jet Express
Jeff Davis, Jet Express
Matt Burt, BRW, Inc.

**SUMMARY OF QUESTIONS AND ANSWERS:**

1. ***What are the transportation goals of your organization?***

2. ***What are the transportation responsibilities of your organization?***

- Jet Express is a small family owned business based in Dayton, Ohio. The company's major business, 85% of the total, comes from the automotive industry. Jet Express is a contract carrier for General Motors and currently carriers 300 loads per day for GM over distances ranging from l/4 mile to Texas. The loads are mostly unfinished parts and are delivered just-in-time (JIT).

- The company owns 400 trailers and 80 tractors and utilizes 120 owner/operators.

- The company is very involved in the American Trucking Association and the Ohio Trucking Association.

3. ***What are the most significant transportation problems in your jurisdiction?***

- Traffic congestion. It's getting worse daily. Federal government studies have shown that 70 percent of accidents are caused by automobiles; more automobiles mean more accidents.

- Construction impacts. The company is very concerned about the impacts caused by the upcoming reconstruction of the 1-70/I-75 interchange. They are not sure how they will be able to do business (the company is located on Needmore Road).

- There are not enough rest stops for truckers to sleep.

- Roadside inspections/scales cause delay. Company trucks were inspected a total of 250 times in 1995. Three or four different agencies perform inspections: the Public Utilities Commission of Ohio, State Patrol and the State Department of Transportation. It would be good to bypass inspections. The company is interested in and have looked into the Advantage I-75 project. Experience has been limited because there is only one weigh station between Dayton and the Ohio state line. A large percentage of the company's out-of-service inspections occur in Michigan and Michigan has not allowed Jet Express to participate in the bypass.

- Traffic is heavy in and out of Dayton in the morning and afternoon peaks.

- The 1-70/I-75 interchange area. Any sort of accident in the vicinity stops traffic in both directions on

I-70. The steep cloverleaf ramp onto westbound I-70 causes trucks to slow way down, which combined with poor sight distance makes it very difficult to merge.

- Non-productive time spent in slow traffic on I-75 through Dayton wastes massive resources. GM is the Dayton area's second largest employer and most plants are located in the southern part of the area. The company is constantly shuttling from the north to the south side of Dayton to meet just-in-time delivery schedules and traffic delays caused by accidents disrupt delivery schedules on a daily basis.

- Generally, regional congestion and mobility are not bad compared to other large metro areas

- Ramp metering creates problems by backing up traffic on the ramp. There is not enough merge/weaving area at the I-70 southbound on-ramp at Wagner Ford Road. Having to come to a complete stop at a ramp meter would make it even more difficult for trucks to merge.

- On ramps are a problem. Between Wagner Ford Road and Springboro Pike there is not one safe ramp. The First Street northbound on-ramp to I-75 (merging from the left) is a good example of an unsafe ramp.

- I-675 is not a good reliever route. It is too circuitous and hasn't helped with the basic north-south problem.

***4. What are your most significant coordination issues working with other organizations to solve area transportation problems?***

- The company has good cooperation with the Ohio Trucking Association.

- ODOT organizes the annual Ohio Motor Vehicles Safety Conference which effectively brings together all different sorts of industry participants.

- Generally, information sharing is pretty good. A couple of years ago ODOT improved almost all of the ramps along I-75 and put out a lot of useful advisory information, including television spots, pamphlets and t-shirts. It was an outstanding effort. At least as much effort is expected and will be necessarily for the upcoming 1-70/I-75 reconstruction.

***5. What Intelligent Transportation System or related technologies is your organization now using?***

- Each tractor has a pager and cellular telephone.

- Five tractors are equipped with satellite tracking equipment, which has been mandated by one customer. The cost of the equipment is high, about $3,200.

***6. What funded plans do you have for new Intelligent Transportation System technologies?***

- Adding more satellite tracking units.

***7. What unfunded projects or suggestions do you have to address unmet transportation needs using Intelligent Transportation System technologies and/or institutional arrangements?***

- Grade separated, separate facilities for truck traffic.

### *8, Other Issues*

- Jet Express has been involved with the national CVISN project, a project to download all roadside safety inspection information to a central database and to allow carriers with good records to bypass inspections.

# Local Agency Interviews

**DATE:** 10/3/96

**ATTENDEES:** Dexter McMillan, Director of Transportation, City of Kettering
Chuck Haught, City Engineer, City of Moraine
Anne Hassoun, Senior Transportation Engineer, Miami Valley Regional Planning Agency
Matt Burt, BRW, Inc.

**STJMMARY OF QUESTIONS AND ANSWERS:**

1. ***What are the transportation goals of your organization?***

2. ***What are the transportation responsibilities of your organization ?***

- The City of Kettering includes no interstate mileage. Most residents live outside of 5 minutes access to a freeway. Trying to keep traffic moving on surface streets is a primary responsibility.

3. ***What are the most significant transportation problems in your jurisdiction?***

- Regionally, there are few good alternates to freeways. The lack of arterial street river bridge crossings is a major constraint to use of surface streets to relieve I-75 through downtown Dayton. I-675 is too circuitous to serve as a viable reliever to I-75.

- Dixie Highway has two many traffic signals to serve as an effective alternative to I-75.

- The City of Kettering deals with the impacts of detoured freeway traffic in a reactionary mode. Something pre-planned would be good.

- The City of Moraine must deal with traffic that detours off of I-75. The City wants to be able to move this traffic through while maintaining service to local trips.

- The City of Kettering has a voluntary fire department so fire vehicle access is a concern in both directions: on the way to the station house in response to a call and on the way to the fire from the station house. Sometimes the volunteers drive their own vehicles to the incident scene. These issues complicate the issue of fire vehicle signal preemption.

- Currently, only the traffic signal closest to each fire station are preempted in Kettering.

- Traffic operations in the I-751Springboro Pike (SR 741) area is key focus for the City of Moraine. A study has examined intersection improvements.

- Montgomery County will install a traffic signal at the Alexanderville-Bellbrook Pike/State Route 725 intersection. This will make too many traffic signals in a short segment of roadway and will necessitate coordination.

- In Moraine, there is a problem with vehicles exiting I-75 and trying to get onto Dryden Road southbound. The intersection is not signalized.

- The roadway design of I-75 south of US 35 creates traffic problems. Weaving sections are short and vertical and horizontal curves make it hard to see ahead and anticipate lane changes, stoppages, etc.

- There are too many freeway ramps along I-75 through downtown Dayton. The closely spaced ramps and volume of entering and exiting traffic make the freeway one large weaving section. A particularly dangerous movement is from westbound State Route 4, across the lanes of I-75 to reach the right side exit to North Main Street.

- I-75 carries too much local traffic in addition to the national traffic it serves.

- In response to perceived incidents, northbound I-75 traffic often exits at South Dixie Highway and uses State Route 741 (Springboro Pike) to get north and back onto 2 to 3 miles to the north. The problem is that this detour often does not bypass the incident scene, which is often farther to the north on I-75.

- Existing manual detours takes too long to deploy.

- The intersection of State Route 741 and South Dixie Highway/Kettering Boulevard is heavily impacted by diverted freeway traffic.

- Media traffic information is not accurate and timely enough. Information that is no longer accurate gets repeated. Media traffic services are interested in selling advertising rather than traffic information.

- Delay in getting clearance to fly through Wright Patterson Air Force Base air space makes it difficult to quickly cover the region in surveillance aircraft.

- Transit is not oriented to serving suburb-to-suburb trips.

- There are no good east-west transit routes. Routes are structured around the downtown Dayton transit system hub.

- Regionally, abundant parking has not been a positive influence on transit ridership.

- Many people won't use transit vehicles because there is often not enough room to carry packages.

***4. What are your most significant coordination issues working with other organizations to solve area transportation problems?***

- The City of Kettering coordinates with neighboring communities on traffic signal systems. The City has worked successfully with the City of Moraine for many years and Kettering has one signal system that crosses over into Beavercreek.

- The Cities of Kettering and Moraine are currently coordinating on a major traffic signalization project that is now in the design phase. The project involves replacing copper phone connect signal wiring with fiber optic cable, installation of 12 closed-circuit television surveillance cameras (pan-tilt-zoom type), and testing of machine-vision technology for traffic signal detection. The project is federally funded and will be constructed next year. LJB, Inc. is leading the project.

- The Cities plan to share the video feed from the 12 CCTVs with the media and with law enforcement. The details of who controls which cameras and when have not been worked out yet.

- Most signal coordination agreements are informal. The City does not participate in any regionwide traffic signal initiatives.

- The City of Kettering has a written agreement with ODOT District 8 whereby the City controls the ODOT signals at the I-675 ramp. The agreement was the first of its kind in Ohio. Concessions were made to ODOT to put loops on the off-ramps to help avoid back-ups.

- The City of Moraine has been unable to acquire control of any ODOT District 7 signals on I-75 ramps. The City is currently requesting control of the signals at the I-75/springboro Pike and I-75/Dryden Road ramps.

- The City of Kettering's community transit service was obsorbed by the Miami Valley Regional Transit Agency (MVRTA) and now service is reduced.

- The MVRTA does not seem responsive to ideas for improvements to transit service in Moraine.

***5. What Intelligent Transportation System or related technologies is your organization now using?***

- Closed loop signal systems.

***6. Waht funded plans do you have for new Intelligent Transportation System technologies?***

- The federally funded, joint Kettering-Moraine fiber optic signal wiring replacement project that also includes closed-circuit television cameras and machine-vision detection (see *the description* ***under*** *question #4).*

***7. What unfunded projects or suggestions do you have to address unmet transportation needs using Intelligent Transportation System technologies and/or institutional arrangements?***

- Regional traffic signal coordination would be good. ITS is an opportunity to increase regional cooperation.

- ITS technologies could help make suburban, neighborhood oriented, demand responsive transit service feasible. Moraine has considered neighborhood transit service but the projected ridership was low and the projected subsidy requirements ended the project.

***8. Other Issues***

- The City of Kettering purchases localized weather forecasts, including pavement conditions, etc. from a commercial weather service, Acuweather.

# Local Agency Interviews

**DATE:** 10/30/96

**ATTENDEES:** Doug Christian, Miami County Engineer
Matt Burt, BRW, Inc.

**SUMMARY OF QUESTIONS AND ANSWERS:**

***1. What are the transportation goals of your organization?***

- To provide safer highways. Many roadways have been widened in the past at the expense of the berm, which are now often between 1 and l-1/2 feet wide. The County has been widening the berms to 6 feet.

- To reduce delays and to improve traffic flow.

- In terms of improvements, the County generally reacts to development and city annexation. They are not in the habit of building infrastructure to attract development. Experiment Farm Road is an example of road that has been widened in response to development generated traffic. The road serves as a shortcut to the shopping mall. The road was widened from 18 to 22 feet and several dips were leveled.

- The curves on most County roadways were laid out to accommodate horses and buggies and are not well suited to today's traffic. The County has an ongoing effort to identify safety problem areas and to identify and implement appropriate remedies. Sight distances are often a problem and the County first considers removal of any obstructions, such as vegetation. If necessary, signage and pavement markings are considered. Finally, geometric improvements are considered.

***2. What are the transportation responsibilities of your organization?***

- The County maintains 435 miles of roadway. 265 miles of this are township roads and approximately 160 miles are state routes.

- The County is slowly becoming more urbanized as development in northern Montgomery County pushes north.

- Development has concentrated around the interchanges along I-75. The interchange of I-75 with SR 41 in Troy is developing rapidly.

- Major transportation improvements are occurring in the developing areas around the I-75 interchanges.

- County Road 25A parallels I-75 and was formerly a US route. The segment of 25A between Troy

and Piqua was widened from two to four lanes in 1980. The segment from Troy south to the Camp Troy interchange *(northern edge of Tipp City?*) is now being widened from two to four lanes. The 25A widening project will be completed in 2000-2001.

- The County's only traffic signal is located at the intersection of 25A at I-75. The signal was installed in 1993-l 994.

- Most County highways are two lane roads with 20 feet of paved surface. The general condition of the roadways is good. 290 miles of road are "404 pavement".

- Accident reports are used in identifying problem locations. These records are now being entered into a computer database by the County.

- The County is generally fairly progressive in their uses of signage and markings. They try to inform motorists as much as possible.

***3. What are the most significant transportation problems in your jurisdiction?***

- Narrow roadways and localized accident and safety problems.

- Culverts with parapet walls too close to the roadway are a problem and the County tries to improve 6 or so locations a year.

- Driver behavior. The County cannot design roadways adequately to accommodate the unsafe speeds driven by a minority of motorists.

***4. What are your most significant coordination issues working with other organizations to solve area transportation problems?***

- There have not been any coordination problems. Overall, the County enjoys better working relationships than many other counties.

- Staff at the three cities (Piqua, Tipp City and Troy) have philosophies similar to the County's.

- Cooperation with the three cities has been good. For example, the County and the City of Piqua have shared funding responsibility for the improvement of Looney Road between US 36 and County Road 25A. Each organization paid half of the $2.5 million cost. The County has made similar arrangements with Tipp City and Troy. The County has worked out good cooperative agreements with all three cities.

- The County has a good working relationship with ODOT District 7.

- ODOT periodically provides a list of projects within Miami County. This list is also provided to the newspapers. The County and ODOT have worked out a good relationship on "de factor" detours, detours which may or may not be designated but which are driven by motorists.

***5. What Intelligent Transportation System or related technologies is your organization now using?***

- None. The existing traffic signal is actuated.

***6. What funded plans do you have for new Intelligent Transportation System technologies?***

- None. An additional traffic signal is planned along County Road 25A for next year.

***7. What unfunded projects or suggestions do you have to address unmet transportation needs using Intelligent Transportation System technologies and/or institutional arrangements?***

***8. Other Issues***

# Local Agency Interviews

**DATE:** 1 l/7/96

**ATTENDEES:** Steve Homan, Wright State University
Rob Kretzer, Wright State University
Jeff Benson, BRW, Inc.
Matt Burt, BRW, Inc.

**SUMMARY OF QUESTIONS AND ANSWERS:**

***I. What are the transportation goals of your organization?***

***2. What are the transportation responsibilities of your organization?***

- Responsible for student, staff and event parking. The University has about 16,500 students, about 2,500 of which live on campus.

- The University operates a campus shuttle service staffed with student drivers. The Shuttle provides service between the Nutter Center and the main campus. On weekends, the shuttle serves trips between residential areas and the Fairfield Commons Mall. Weekday service operates at 10 minute headways. Weekday service operates at 50 minute headways.

- The shuttle service utilizes three 29-passenger buses and three vans.

- The Miami Valley Regional Transit Agency (RTA) operates service to the University and has proposed to take over the campus shuttle, adding an RTA stop at the Nutter Center. The proposal includes a $5 per quarter ride card good for an unlimited rides.

- The RTA currently does not operate outside of Montgomery County (with the exception of Wright State University). The RTA is funded through a Montgomery County % cent sales tax. The RTA does not serve the Fairfield Commons Mall, although the mall includes transit accommodations for large buses. Greene County agencies operate several transit services to the mall.

***3. What are the most significant transportation problems in your jurisdiction?***

- Signage for the Nutter Center is inadequate. Existing signs are marked only "Wright State University" and many people do not associate the University with the Nutter Center.

- Arrivals for Nutter Center events peak sharply; everyone wants to show up between 30 and 45 minutes before an event so there may be 3,500 cars trying to access the facility at the same time.

- Options for routing of Nutter Center traffic are few. There are multiple lots, including an overflow lot, but the same basic approach is used for all of the lots. Routing is just a matter of how far back into the parking area cars have to go. It's unclear how an ITS parking system would change this.

- The campus currently has considerable excess parking. However, the campus Master Plan shows the elimination of four internal parking lots.

- Overall, traffic flow on campus is pretty good and has improved over the years. Most of the headaches in recent years have been related to Nutter Center events.

- Part of the problem with Nutter Center events is that students, staff and faculty feel they can use the same routes to access the facility during events as they use during normal weekdays. It's difficult to convince students, faculty and staff to use alternative approaches.

- On a typical weekday the maximum number of cars parked on campus is approximately 7,000, with all interior parking lots filled. The Nutter Center parking lot is currently occupied by about 300 cars each day. This number is expected to increase with the elimination of the four internal parking lots, increasing demand for the campus shuttle. Cost for weekday Nutter Center parking is now $5 per quarter, compared to $20 per quarter for use of the internal lots.

***4. What are your most significant coordination issues working with other organizations to solve area transportation problems?***

- Coordination with ODOT on the issue of Nutter Center signage has not yet produced results. The University submitted a proposal for improved signage to ODOT and the Miami Valley Regional Planning Commission but it was not acted upon. Instead, ODOT and MVRPC have tied the signage issue to the ITS plan.

- ODOT will not allow separate signs for both the Wright State University campus and the Nutter Center. Using separate signs for what is considered one location is against regulations. For a time, the University was positioning a simple portable arrow sign on I-675 right-of-way during Nutter Center events but ODOT prohibited the practice.

***5. What Intelligent Transportation System or related technologies is your organization now using?***

***6. What funded plans do you have for new Zntelligent Transportation System technologies?***

***7. What unfunded projects or suggestions do you have to address unmet transportation needs using Intelligent Transportation System technologies and/or institutional arrangements?***

- The University is currently working with ODOT and the MVRPC to develop a project to study an ITS traffic information system for the Nutter Center area.

***8. Other Issues***

- The City of Fairbom has a planned project for 1997 that will widen and add turn lanes to Colonel Glenn Highway.

# Local Agency Interviews

**DATE:** **10/03/96**

**ATTENDEES:** Tim Gothard, City Engineer, City of Springfield
Matt Burt, BRW, Inc.

**SUMMARY OF QUESTIONS AND ANSWERS:**

***1. What are the transportation goals of your organization?***

***2. What are the transportation responsibilities of your organization?***

- The City has no new major initiatives.
- The extension of North Bechtle Avenue north and east from Hillcrest Avenue to Roscommon Drive is a current focus.
- The signal system along the one-way pairs of State Route 4/US 40 through downtown will be upgraded.
- A closed-loop traffic signal system is under design for Bechtle Avenue between State Route 41 and State Route 4/US 40.
- The City will apply for federally funding for a traffic signal interconnect project on State Route 72 from College to Home Road and east on Home Road to Deer Road.
- The CCSTCC has just completed an access mangement study that, although it has not produced any new requirements, has raised awareness with developers.

***3. What are the most significant transportation problems in your jurisdiction?***

- Overall, congestion is not a problem. The greatest growth has occured in the northern portion of Springfield.
- Too many driveways are being allowed onto outlying county roads. Every residential property wants direct access to the county road.
- The area around State Route 41 and North Bechtle Avenue is developing with "'big box" retail and traffic congestion is sometimes a problem.
- The impact of I-70 detours. Recently there was an incident involving an overturned truck on I-70 just east of South Burnett Road that essentially closed I-70 for 12 hours.

- The City is very concerned about the detour impacts associated with upcoming simultaneous construction on I-70 and the main detour route, US 4O/State Route 4. The I-70 construction is planned for sometime in the next few years and will involve bridge widenting and shoulder strengthening for use as extra lanes. The project is expected to detour traffic through Springfield on US 40/State Route 4. The City will be closing lanes on US 40 and High Street for replacement of two bridges during the same time period and expects to detour traffic onto Main Street. Theoretically, the simultaneous projects could both detour traffic onto Main Street.

***4. What are your most significant coordination issues working with other organizations to solve area transportation problems?***

- Inadequate notice and coordination with ODOT involving detours off of I-70. Sometimes the City knows nothing about a detour until heavy truck traffic is observed through downtown Springfield

***5. What Intelligent Transportation System or related technologies is your organization now using?***

- A closed loop traffic signal system in the vicinity of Bechtle Avenue and State Route 41.

***6. What funded plans do you have for new Intelligent Transportation System technologies?***

- A closed loop traffic signal system on North Bechtle Avenue between State Route 41 and US 40/State Route 4.

***7. What unfunded projects or suggestions do you have to address unmet transportation needs using Intelligent Transportation System technologies and/or institutional arrangements?***

- The highest potential ITS projects are those used in conjunction with construction/incident detours off of I-70. US 40, which runs through downtown Springfield, is the obvious detour route. US 68 has potential as an alternative to I-75 south and west out of Springfield. State Routes 4 and 161 are alternative routes east out Springfield to Colubus.

- Traffic signal progression along the major east-west detour route (State Route 4/US 40) is generally pretty good even though the signals are only visually coordinated. There is room to improve flow during incidents with special timing plans.

***8. Other Issues***

- It would be a good idea to talk to Billy Ruddy and Ray Miller from ODOT.

# Local Agency Interviews

**DATE:** 10/3/96

**ATTENDEES:** Mike George, Springfield Community Area Transit (SCAT)
Matt Burt, BRW, Inc.

**SUMMARY OF QUESTIONS AND ANSWERS:**

***I. What are the transportation goals of your organization?***

***2. What are the transportation responsibilities of your organization?***

- SCAT provides fixed route and paratransit service and operates 15 buses, 10 of which are active at any one time with 5 as backup. SCAT has 4 paratransit vehicles and plans to increase that number to 6 vehicles.
- Ridership is on the upswing in the last several years. Paratransit ridership in particular has increased significantly.
- Paratransit service requires a minimum 24 hour advance reservation.
- Scheduling is performed manually. Two-way radios are used for communication.
- SCAT would like to expand its hours of service to better accommodate work trips. Current hours of operation are 6:40 AM to 5:40 PM.
- SCAT carries quite a few high school students. The City does not provide high school bus service.
- SCAT has an on-going public education/outreach program.
- SCAT operates a manual customer information telephone line and customers can also fax in questions. This process works well. Printed individual route schedules are available and SCAT is working on an overall system map.
- The mall is a major trip destination and this route has the highest ridership. Clark State and the Southwest Loop are the other high ridership routes.

***3. What are the most signifiant transportation problems in your jurisdiction?***

- Funding consistency is a challenge. There is no dedicated transit funding source, SCAT funds come from the City of Springfield General Fund. Disruption of federal funding would be problematic.
- Train delays are a problem. The City of Springfield has only one grade-separated rail crossing. Rail

traffic has increased. The only real solution to train delays is the construction of additional grade-separations.

- The only area where traffic congestion is much of a problem is the area surrounding Bechtle Avenue and State Route 41 during the holidays.

4. ***What are your most significant coordination issues working with other organizations to solve area transportation problems?***

5. ***What Intelligent Transportation System or related technologies is your organization now using?***

6. ***What funded plans do you have for new Intelligent Transportation System technologies?***

7. ***What unfunded projects or suggestions do you have to address unmet transportation needs using Intelligent Transportation System technologies and/or institutional arrangements?***

- Automatic vehicle location would probably be cost prohibitive for a system the size of SCAT.

- SCAT is generally satisfied with scheduling, dispatch and communication processes and technologies.

8. ***Other Issues***

# Local Agency Interviews

**DATE:** 10/4/96

**ATTENDEES:** Roy Williams, Director of Aviation, Dayton International Airport
Jeff Benson, BRW, Inc.
Matt Burt, BRW, Inc.

**SUMMARY OF QUESTIONS AND ANSWERS:**

***I. What are the transportation goals of your organization?***

- Overall, want to facilitate the movement of people to/from and through the airport.
- Enhancement of revenue sources also an ongoing goal.

***2. What are the transportation responsibilities of your organization?***

***3. What are the most significant transportation problems in your jurisdiction?***

- Airport facilities are currently overbuilt by about two-thirds (one-third of the current capacity is actually utilized). The airport enjoys unrestricted direct access to I-70 and has great ground-side access for private vehicles, so there are few serious problems now.
- Emery, the largest airport employer, currently doesn't have direct access to the airport access road (which leads to I-70). Remedies are being pursued in conjunction with the Miami Valley Regional Planning Commission.
- Alternatives to I-75 are not always clear. From Fairbom, there is no clear option.

***4. What are your most significant coordination issues working with other organizations to solve area transportation problems?***

- Generally, there is not a great deal of coordination with the Ohio Department of Transportation. Most coordination occurs with the Federal Aviation Administration.

***5. What Intelligent Transportation System or related technologies is your organization now using?***

***6. What funded plans do you have for new Intelligent Transportation System technologies?***

***7. What unfunded projects or suggestions do you have to address unmet transportation needs using Intelligent Transportation System technologies and/or institutional arrangements?***

- Putting transponders on taxi cabs so that the airport can automatically keep track of taxi cab use of airport facilities and charge the operators accordingly. Cabs are currently charged $0.50 per stop for use of the passenger pick-up area and billing is based on manual observation and recording. Automation of this process could allow more money to be raised, would be more accurate, would

provide useful managment information and would reduce labor costs.

- Relatively speaking, the airport does not experience high volumes of tourist traffic and the need for travel information for tourists and other unfamiliar travelers is proportionate. The airport would consider participating in a partnership to provide (a) traveler information kiosk (s), however.

- A concern with using external (outside of the airport) displays for flight information is that there is no good location. A parking structure is usually a good choice and the airport has only surface parking. Would be concerned about using the monitors outside the main entry; wouldn't want to have people stopping there. It's also unclear whether people are willing to rely on information displayed outside. Many people want to confirm the information on inside monitors.

***8. Other Issues***

- Liz Bloom, City of Dayton Director of Planning, should be consulted regarding this project.

# Local Agency Interviews

**DATE:** 10/2/96

**ATTENDEES:** Colonel John Compston, City of Dayton Police Department
Assistant Chief Larry Collins, City of Dayton Fire Department
Matt Burt, BRW, Inc.

**SUMMARY OF QUESTIONS AND ANSWERS:**

1. ***What are the transportation goals of your organization?***

   - Maintenance of traffic flow and the safe removal of vehicles from incident sites (Compston).

2. ***What are the transportation responsibilities of your organization?***

3. ***What are the most signifiant transportation problems in your jurisdiction?***

   - The design of roadways is the biggest problem. "Malfunction Junction" (I-75 and State Route 4) is still a problem despite the attempted remedies. Slick overpasses are also a problem. (Compston).

   - Access to congested accident scenes is a big problem. With the center barriers on I-75 there are few good turn-around points. The heavy volume and inaccuracy of cellular phone calls is also a problem. Many calls are redundant or just wrong. The Fire Department is legally bound to address all of the calls received (Collins).

4. ***What are your most significant coordination issues working with other organizations to solve area transportation problems?***

5. ***What Intelligent Transportation System or related technologies is your organization now using?***

   - The City of Dayton Police Department in conjunction with the City of Dayton Traffic Engineering Department has developed an incident response plan for the 5.1 miles of I-75 through Dayton. The plan includes fixed, manually operated, flip-down detour signs and preset detour plans. Interaction with the media, utilization of ODOT portable changeable message signs and agreements for coordinating with the Ohio Department of Transportation and the Ohio State Patrol are included in the plan. The program does not include any preset signal timing plans. The program is simple but could be expanded (Compston).

6. ***What funded plans do you have for new Intelligent Transportation System technologies?***

   - The Fire Department is putting significant resources into equipment for large vehicle removal. Over $800,000 will be spent over the next two years for new equipment, including retrofitting of ladder trucks with extraction equipment, and training (Collins).

- The Police Department is currently developing a demonstration project that will allow motorists to receive in-vehicle alerts of the nearby presence of a responding emergency vehicle. The vendor, Code 3), has agreed to supply 50 transmitter devices for the emergency vehicles. All car radios now being produced include the capability to receive this type of information (Compston).

***7. What unfunded projects or suggestions do you have to address unmet transportation needs using Intelligent Transportation System technologies and/or institutional arrangements?***

- Use of dedicated traffic reporting numbers is worth considering but these numbers can pose some problems, such as the major investment required to educate the public on when and how to use them (Collins).

- Any successful traffic reporting hotline would have to be done in conjunction with a regional transportation center with monitoring and processing capabilities (Compston).

- Any sort of major freeway/incident management effort would require a traffic management center. The resources required for these activities is prohibitive for individual jurisdictions. A regional program would require a strong champion (Collins and Compston).

- The Fire Department is considering various automatic vehicle location/geographic information system (GIS) options. The Department currently utilizes GIS in its planning department but has not coordinated it with response/dispatch (Collins).

- The Police Department and Fire Department currently utilize mobile data terminals (Collins and Compston).

- The City of Dayton Police and Fire Departments currently use separate 800 MHZ communications systems. Most other jurisdictions do not use 800 MHZ systems and cannot easily be coordinated with. There is a critical need for a regional, coordinated 800 MHZ system with a single communications center with the system funded through taxes. This issue is currently being examined by the Miami Fire/EMS Alliance; the contact is Glen Alexander (Collins and Compston).

***8. Other Issues***

- Vehicle removal is generally not a big problem. Tow truck companies are organized by zone and are usualiy allowed to make the first effort (Compston).

- There are no regional freeway service patrols. A local tire company has one vehicle, but its service is extremely minor. There are no Samaritania vehicles in operation (Compston).

- The approach to freeway/incident management in Cincinnati seems generally to be a good model to follow (Compston).

- Linking the ITS program to air quality is important for funding (Compston).

# Local Agency Interviews

**DATE:** 10/4/96

**ATTENDEES:** Jim Buckson, Mobility and Traffic Operations Engineer, FHWA-Ohio Division
Mike Morris, MPO Liaison, Ohio Department of Transportation-District 8
George Saylor, Transportation Systems Engineer, Ohio Department of Transportation-Central Office
Phil Stormer, District Traffic Engineer, Ohio Department of Transportation-District 7
Jeff Benson, BRW, Inc.
Matt Burt, BRW, Inc.

**STJMMARY OF QUESTIONS AND ANSWERS:**

***1. What are the transportation goals of your organization?***

- In general, the trend at ODOT is toward leaving projects increasingly to the responsibility of local and regional agencies. ODOT will no longer participate in the funding match for most local projects.

- ODOT will consider participation in local ITS projects under this study, especially intercity projects such as those between Dayton and Springfield. In general, however, ODOT has become more selective about what local ITS projects it will participate in. Planning funds are being supplied to promote inclusion of ITS in the planning process but the overall philosophy is to let local and regional agencies pay for local and regional improvements. In this sense, the funding of ITS projects is being handled no differently than local intersection improvements, resurfacing projects, etc.

***2. What are the transportation responsibilities of your organization?***

***3. What are the most significant transportation problems in your jurisdiction?***

- Freeway capacity and level of service. Freeways are being used as primary daily commuter routes, a purpose they weren't necessarily designed for. The interstate system is being asked to serve so many different trip types.

- Maintenance is a problem. A high percentage of the capital budget goes toward trying to hold the infrastructure together.

- Funding is a problem.

- High truck volumes on existing 20' wide pavements is a problem.

4. ***What are your most significant coordination issues working with other organizations to solve area transportation problems?***

- Conflicting priorities is a major issue. For example, one jurisdiction's worst intersection may rank far down the list when considered in conjunction with intersections across multiple jurisdictions.

- Home Rule is a significant coordination issue.

- Turf issues are significant, especially in the area of incident management. It would not be possible to resolve all the necessary issues relative to regional incident management in the course of this study; an incident management task force would expend all of the project resources. It would be a better idea to recommend such a group as one of the plan's projects.

- Regarding incidents, local law enforcement assumes the role of traffic expert and make traffic engineering judgements. There is sometimes a basic conflict in ODOT and law enforcement goals, with ODOT interested in restoring traffic flow and law enforcement interested in insuring the safety of their personnel and preserving evidence. This can cause the closure of more lanes than needed (from an engineering perspective). Abandoned vehicles are a problem.

- The City of Columbus is a good example of cooperation between a police department and a traffic engineering department. The City also charges trucking companies for time and materials in cleaning up roadway spills.

- Successful incident management has almost always been in conjunction with legislation.

5. ***What Intelligent Transportation System or related technologies is your organization now using?***

- The City of Columbus has 6 to 10 metered freeway on-ramps and more are proposed as part of the freeway management system. Installation of the ramp meters has not waited on development of the overall freeway management system, ramps have been installed and set up to operate in a pre-timed mode.

- Ramp metering is worth considering for the Miami Valley but the decision needs to consider design. There are many downtown ramps where there may not be room to operate meters.

- District 7 operates approximately 110 to 120 traffic signals, concentrated in the northwest portion of the metropolitan Dayton area and in the vicinity of the Dayton mall. In the northwest, signals are located along State Route 48 from north of Shiloh Springs Road to the intersection with State Route 4 in downtown Dayton; and along State Route 49 from I-75 in downtown Dayton to Olive Road. Along the portion of Route 48 within the City of Dayton, the ODOT signals are included in the City's Monarch centralized traffic signal control system. In the future, ODOT will operate signals along the Trotwood Connector, from the junction with State Route 49 south to the junction with US 35. In the vicinity of the Dayton mall, ODOT signals are located along State Route 725 from Alexandersville Road to Normandy Lane; and along State Route 741 from Alexanderville - Bellbrook Pike to Austin Pike. There are plans to upgrade the signals on Routes 725 and 741 to a Monarch style centrally controlled system.

*6. What funded plans do you have for new Intelligent Transportation System technologies?*

*7. What unfunded projects or suggestions do you have to address unmet transportation needs using Intelligent Transportation System technologies and/or institutional arrangements?*

- A challenge for implementing hazardous materials programs is the essentially voluntary nature of such programs. A program would need to be federally mandated. At some point it would become an economic disadvantage for operators not to participate.

- It is hard to implement one commercial vehicles project or program. It would be better to implement a bundle of programs.

- It is unlikely that ODOT would fund and operate a regional traffic management center.

- Alternatives to a centralized traffic management center need to be investigated.

- It must be remembered that the necessary commitment to regional traffic management does not end with construction/capital funding.

- In some ways the Miami Valley is not like areas where centralized traffic management centers are now operating. The Cincinnati ARTIMUS project was the first one in the state and is not necessarily the model to be followed. ODOT is promoting an incremental staged approach to ITS deployment. For example, if early projects focused on transit, transit vehicles could be used as probes to supply traffic data.

*8. Other Issues*

- The last major highway expansion was US 35, west of Dayton, which is expected to be completed in October 1996. The last freeway expansion was on I-70 west of Springfield.

- A western beltway ("892") is now being considered for the Dayton region. The project is in the non-fiscally constrained "vision" portion of the existing Miami Valley Regional Planning Commission Long Range Transportation Plan. The area immediately surrounding I-675 is too developed to serve as a good tie-in point for the new segment of beltway. The Austin Pike interchange study to be completed next year will significantly influence the future of the beltway project. The upcoming County Engineer elections will also significantly influence the project.

- It's not certain the extent to which ODOT is doing long-range fiscal forecasting. Use of the ISTEA type systems approach, e.g., pavement, etc., has helped. It is unlikely that cross-system comparison are often made relative to project prioritization.

- Project planning and prioritization at ODOT utilizes a point system where points are awarded based on factors such as economic development potential, vehicle miles traveled/average daily traffic, etc.

- A number of different lists are used in programming projects. Each type of project has its own list and implementation within each program is driven by the funding for that list/category.

- Until recently, the ODOT Central Office controlled funding. Now funding for many categories is

given over to the districts. This decentralized approach seems to be working better. The old centralized approach did not give much priority to signals, signage, striping, etc.

- One of the challenges in implementing ITS is the fact that traffic signals/traffic engineering projects have traditionally had a low priority, relatively, with the state.

- The Cincinnati ARTIMUS project was made possible in large part due to the large obligation of ISTEA CMAQ funds the area received as an air quality non-attainment area. It would be good to use CMAQ funds in the Miami Valley if possible. If not, an equivalent source of funding needs to be identified.

- TRW is operating the Cincinnati ARTIMUS traffic management center for the first two years. After that, when the state assumes control, the operation will probably be privatized.

# Local Agency Interviews

**DATE:** 10/2/96

**ATTENDEES:** Norm DeHaven, Greene County Engineering Department
Matt Burt, BRW, Inc.

**SUMMARY OF QUESTIONS AND ANSWERS:**

***1. What are the transportation goals of your organization?***

- The goals and responsibilities of the engineering department revolve around the 5-Year Capital Improvement Program.

- The status of County transportation projects will be dependent in large part on the outcome of upcoming elections for County Engineer.

***2. What are the transportation responsibilities of your organization?***

- The 5-Year Capital Improvement Program and highway maintenance are the two main responsibilities. An effort is being made to upgrade the surface of western County roads to 404 pavement and raised pavement markers have been installed.

***3. What are the most significant transportation problems in your jurisdiction?***

- The transportation environments in the county are quite variable. The eastern portion of the County is predominately rural and there are not a lot of problems related to traffic volumes and density. The western portion of the county is more urbanized and includes the City of Beavercreek and the Fairfield Commons (mall) area, where traffic is much more dense and is getting heavier. The mall and related development continues to cause traffic volumes to rise, sometimes dramatically. Volumes along portions of the Trebein Road have doubled since the mall opened (approximately 1992).

- Under designed, outdated two-lane roadways, especially in the Fairfield Commons area, are a problem. Many old, two-lane county roads are now carrying traffic volumes well in excess of their design capacity. Upgrading these facilities is complicated by the relative unavailability of affordable right-of-way.

***4. What are your most significant coordination issues working with other organizations to solve area transportation problems?***

- The County has had good experiences working with other agencies, especially sharing of closed-loop signal systems (with the Cities of Beavercreek, Centerville and Fairborn).

- The County has had good experiences coordinating detours and construction with Montgomery County.

- The County has a long and successful partnership with law enforcement agencies to collect traffic accident data. The County is supplied information directly by the law enforcement agencies; enters the data into a comprehensive data base, standardizing roadway names and performing other data cleaning as necessary; and provides monthly and annual summary reports to the law enforcement agencies and other regional agencies. Software for the system was custom written and follows the state accident reporting form. The system, ACCSTAT, is more timely and accurate than the information available through the state accident data base, where the data is not screened and cleaned as carefully and which is not nearly as current (the County system is about two weeks behind; the state system is about a year behind). This program has been very successful.

***5. What Intelligent Transportation System or related technologies is your organization now using?***

- The County operates two closed-loop traffic signal systems and both involve partnerships with at least one other jurisdiction. One closed-loop system is located along Wilmington Pike, and is shared with the City of Centerville. Greene County is responsible for monitoring this system. The other system is located along the Colonel Glenn Highway and is shared with the Cities of Fairbom and Beavercreek. Fairbom currently monitors the system but this responsibility will be shifted to Greene County.

***6. What funded plans do you have for new Intelligent Transportation System technologies?***

- The Wilmington Pike closed-loop traffic signal system is being reoptimized/redesigned. The southbound I-675 off ramp carries very heavy traffic volumes and this signal is the key to the coordinated system.

- In the next two months, two new signals will be installed on the west edge of Xenia. The signals will be located at the intersections on either side of the US 35 bypass and will be coordinated using time-based coordination.

***7. What unfunded projects or suggestions do you have to address unmet transportation needs using Intelligent Transportation System technologies and/or institutional arrangements?***

***8. Other Issues***

# Local Agency Interviews

**DATE:** 10/3/96

**ATTENDEES:** John Pappas, Miami Valley Regional Transit Authority (MVRTA)
Matt Burt, BRW, Inc.

**SUMMARY OF QUESTIONS AND ANSWERS:**

***1. What are the transportation goals of your organization?***

***2. What are the transportation responsibilities of your organization?***

- MVRTA operates 245 buses, the 57th largest bus fleet in the United States.
- MVRTA is responsible for transit service throughout Montgomery County and includes special service to Wright State University and Central State University in Greene County. Additional service to be sponsored by Wright State is being considered for Greene County.
- Service is provided seven days per week. Project Mobility is the MVRTA complimentary ADA service.
- MVRTA operates seven electric trolley bus routes and is only one of five transit systems in the country to operate electric trolley buses. The system has been cost-effective to maintain given the existing investment in the infrastructure. The electric trolley bus routes are being expanded.
- The MVRTA is in the midst of its most ambitious capital facilities expansion in its history: six new transit hubs will be constructed and will serve as pulse-points. Currently the system uses only a single hub located in downtown Dayton. Three of the new hubs will be major hubs and three will be minor. The downtown transit center is also being improved and new downtown Dayton headquarters have been purchased at Third and Main Streets. The new location will serve as the new downtown hub. Ground has been broken on two of the new hubs: one at Linden Avenue and US 35 and one in Miami Township in the south metro area. The current radio system is being replaced.
- Published transit schedule and fare information is available at all major transit facilities. A staffed call-in service (Ride Line) also provides information. The call-in service is staffed seven days per week and generally seems sufficient to meet the demand for call-in information.

***3. What are the most significant transportation problems in your jurisdiction?***

- Federal funding is declining but good local funding is in place via sales tax.
- Ridership is low but holding steady. There is significant excess capacity but maintenance of service is necessary in order to maintain existing ridership levels.

- Like any transit agency, the question of the relevancy of transit is an issue. People want transit but they want it for other people.

- It is becoming increasingly difficult to procure buses and other capital equipment. Bus companies are going out of business.

4. ***What are your most signifiant coordination issues working with other organizations to solve area transportation problems?***

- MVRTA is not always properly notified about roadway construction and detours.

- Coordination with other agencies relies heavily on informal connections among individuals.

- A major problem is roadway construction that impacts the electric trolley bus overhead catenary. A data base of construction projects is provided to MVRTA but it is not always detailed enough to fully identify impacts to transit operations.

- Sometimes MVRTA is involved early on in roadway project planning but isn't brought back in until construction is set to begin and catenary needs to be moved.

- The Greene County Transit Study is not very supportive of big bus fixed route transit service.

5. ***What Intelligent Transportation System or related technologies is your organization now using?***

- An automated scheduling computer package (PASS) is used.

- Trapeze, a computer software package to aid in dispatching, has been installed.

6. ***What funded plans do you have for new Intelligent Transportation System technologies?***

7. ***What unfunded projects or suggestions do you have to address unmet transportation needs using Intellignet Transportation System technologies and/or institutional arrangements?***

- Generally, congestion is not extreme or widespread enough to warrant a regional traffic management center. Major problems are restricted to the freeway ramps near the malls.

- The Early Deployment Plan should consider commercial vehicle projects, especially opportunities to build upon the Advantage I-75 project.

- I-70 might benefit from some management.

- MVRTA would like to consider automatic vehicle location/geographic information systems as part of the planned replacement of the radio system. Vehicle location is important for security reasons as well as a source of traveler information. Required resources will probably not be available in the short term.

- One of the most important uses of automatic vehicle location would be to feed transit station electronic displays. These displays could be installed at transit centers and would be very helpful with transfers. This technology is quite feasible and will happen at some point, the deterrent is cost.

- It is uncertain how useful an automated telephone transit information system would be. It would be interesting to research their success elsewhere. There is often a perceived advantage to talking directly with a human operator.

### *8. Other Issues*

- Use of automatic vehicle location and other projects which rely upon geographic information system (GIS) mapping will increase the need for regional GIS coordination.

# Local Agency Interviews

**DATE:** 10/15/96

**ATTENDEES:** Jane Brooks, Montgomery County Engineering
Matt Burt, BRW, Inc.

**SUMMARY OF QUESTIONS AND ANSWERS:**

***1. What are the transportation goals of your organization?***

***2. What are the transportation responsibilities of your organization?***

- The County is responsible for approximately 390 miles of roadway, 540 bridges and 40 traffic signals. The number of traffic signals keeps falling as County signals are taken over by individual communities; the number of County signals used to be 70.

- County staff are kept very busy working on "Issue 2" projects. Issue 2 is a statewide funding program for maintenance and roadway improvements such as widening and intersection improvements. Issue 2 funds cannot be used for new road construction.

- The County has a 5 Year Capital Improvement Program that includes major projects. Signal projects are not included.

- Many of the County's traffic signals are operated independently. All of the signal controllers are solid-state and traffic responsive. Many have extensive loop detection systems.

- The County operates approximately two or three traffic signal systems. The largest system includes seven signals and is located along North Dixie Drive from Needmore Road to Neva Drive ***(parallel to 1-75 in the north metro area-ed.).***

- The County uses a combination of Econolite, Eagle and Transyt traffic signal controllers. Previously there were more Transyt controllers; many of the signals that have been taken over by annexing communities have had Transyt controllers. Most of the controllers are of the NEMA type although there are some type 170 controllers.

***3. What are the most significant transportation problems in your jurisdiction?***

- Overall, the County is doing well and has few serious unmet needs. The focus is now on keeping up with congestion.

- There are a few problematic intersections with congestion/safety concerns: Alexanderville-Bellbrook

Pike/Mad River Road *(1-1/2 miles north **of** the Dayton Mall in the southern part **of** the metro area-ed.)* and Westbrook Road/Taywood Road *(just north **of** the City **of** Trotwood and just east **of** State Route 49, in the western part **of** the metro area-ed.)*. The Alexanderville-Bellbrook Pike/Mad River Road intersection is stop sign controlled in all four directions. Traffic conditions warrant signalization but there are political obstacles.

4. ***What are your most significant coordination issues working with other organizations to solve area transportation problems?***

- Overall, there are no coordination issues. Coordination on detours/construction works well. There have been some cases where other County departments have performed work in roadway right-of-ways without proper coordination.

- The County provides extensive construction information to other organizations, including schools and the media. This system works well.

5. ***What Intelligent Transportation System or related technologies is your organization now using?***

- Coordinated traffic signals.

6. ***What funded plans do you have for new Intelligent Transportation System technologies?***

- None.

7. ***What unfunded projects or suggestions do you have to address unmet transportation needs using Intelligent Transportation System technologies and/or institutional arrangements?***

- The County is generally skeptical about the need for and cost-effectiveness of ITS applications. Generally, conditions don't appear bad enough to warrant investment in these types of strategies.

8. ***Other Issues***

**DAYTON-SPRINGFIELD ITS EARLY DEPLOYMENT PLAN**
**LOCAL AGENCY INTERVIEWS**

**AGENCY:** Ohio Department of Transportation

**DATE:** 10/10/96

**TIME** 9:00 a.m.

**ATTENDEES:**

| | |
|---|---|
| Tom Foody, | ODOT |
| Bill Edward, | ODOT |
| Edward Fekpe, | Battelle |
| William Nelson, | Battelle |

**Summary of Questions and Answers**

1. **What are the transportation goals of your organization?**

- To provide the people of Ohio by planning, building and maintaining a safe, efficient, accessible transportation system that integrates highway, rail, air and water networks to foster economic growth and personal travel.

2. **What are the transportation responsibilities of your organization?**

- Responsible for achieving the goals stated above in particular for the rural highway system, and some urban highway systems that have state designation or shared responsibilities with municipalities and cities.
- In the urban highways the city has full control over planning but state gets involved in funding the projects.
- Significant Federal funding for highway projects.

3. **What are your organization's most significant transportation problems?**

- No specific transportation problem was identified or unique to Ohio
- Highway capacity is an issue in some areas.
- Safety is an issue in high accident locations.

4. **What are your organization's most significant coordination issues in working with other organizations to solve transportation problems?**

- Most important issue to be considered is understanding each participating organization's goals and limitations.
- Coordination is viewed as a "volunteer kind of activity" because participants do not work for the same boss and may not feel obliged.
- Differences in institutional setups and barriers.
- Source of funding for projects requiring coordination of efforts is a consideration.

- Lack of enthusiasm on the part of individual participants.
- In terms of CVOs, trucking industry has to deal with different agencies that operate independent of others. The industry would prefer dealing with one agency.

**5. What ITS technologies is your agency currently using? What are your agency's plans for their expansion?**

- Not much noted at interview- reference to other officials who are directly involved in ITS work.
- Weigh-in-motion installations are used for data collection purposes.
- Agency plans to expand WIM installations.

**6. What are other relevant issues you would like to discuss regarding ITS technologies with particular reference to CVOs.**

- Sharing of databases among agencies - desirable to have a common database, will facilitate this process. Agencies express desire to pursue that course of action but lack the initiative and drive to proceed.
- Industry and agency relationship on ITS applications industry is willing but government or agencies are reluctant.
- ITS deployment requires understanding of the requirements and needs of industry to be successful. For example, industry is skeptical about intentions of such programs; afraid of possible information loss and competitive edge through ITS applications. Trucking industry may view ITS implementation as problem because of the possibility of business loss.
- Biggest problem with CVO is not the technology but the institutional, administrative and deployment issues.

**Commercial VehicIe Operations**
**Inventory of Existing Infrastructure and Utilization**

**1. What is the distribution of weigh scales in Ohio**

- the number of weigh scaIe sites is barely adequate for either weight enforcement and other inspections. Many highways do not have weigh scale sites.

**2. What is the distribution of major trucking terminals in Ohio**

- number and distribution of terminals not known
- trucking terminals are used for off-road audits. Such audits are based primarily on complaints and history of mechanical problems associated with a given company.
- database problems on trucks checked, those issued with out-of-service orders and records indicating that recommended repairs have been fixed.

**3. What are limitations on designated highways in Ohio? How are hazardous material transportation routed?**

- nothing significant noted at interview

**4. What are current and future local or regional Plans and programs, respecting ITS ?**

- Ohio part of the Advantage I-75 project
- Distribution of safety information to computers at the roadside to target high risk carriers - the new Ohio State Multiple Agency radio Communications System (MARCS), to be deployed over the next several years, has incorporated in its planning, the ability to provide "real time" access of all driver-vehicle inspectors to any central database
- Use of license plate reader(s) at roadside to electronically identify commercial vehicles and carriers to check safety information - this is not yet tested in Ohio.
- Electronic application for credentials by motor carriers - portions of infrastructure and technical skills already developed in Ohio.
- Inspectors use portable computers and employ Inspection Selection System to identify carriers for inspection.
- Electronic fuel tax reporting, and the ability to respond to electronic quires from government and industry to verify status of fuel tax accounts - not yet available.

**5. What is relationships to any statewide, national or neighboring state/region plans and programs**

- all programs tied directly into Federal programs
- there is close coordination and standardization of procedures - compliance with Federal regulations, member of CVSA, therefore, compliance with that regulations too.
- works actively with statewide ITS Ohio.

**6. What are some notable deficiencies in the system that are candidates for ITS deployment**

- Improvement in access to relevant data
- Incident and emergency management
- driver information management system - traveler advisory systems
- Opportunities for speeding up the process and improving the quality of the inspection process

**Summary of Existing and Future Conditions**

- safety (high accident locations)
  - The Police report all accidents to PUCO which is then forwarded to the national database. System is currently slow. Ohio is one of the states where the Police are not obligated to make the reports available if they do not want to. Plans to automate the process.
  - Ohio is among the top 10 states with the highest number of heavy vehicle accident fatalities. Most of these occur in the 3 major cities, Columbus, Cincinnati and Cleveland.

- delays (inspections, ***weigh*** stations)
  - delays negligible in most cases

- Hazardous materials issues
  - no additional information obtained

- credentials issues
  very little enforcement effort in this area
  - susceptible to fraud

- out of service vehicle monitoring issues
  - nationally, a significant problem
  - significant improvement expected when inspectors can get real-time access to data so that another inspector downstream can be alerted when a vehicle cited for OOS leaves first inspection site without fixing recommended repair.

**DAYTON-SPRINGFIELD ITS EARLY DEPLOYMENT PLAN**
**LOCAL AGENCY INTERVIEWS**

**AGENCY:** Ohio Trucking Association

**DATE:** 15/10/96

**TIME** 10:00 a.m.

**ATTENDEES:**

| | |
|---|---|
| Tom King, | OTA |
| Larry Davis, | OTA |
| Edward Fekpe, | Battelle |
| William Nelson, | Battelle |

**Summary of Questions and Answers**

**1. -What are the transportation goals of your organization?**

- To ensure safe and efficient movement of freight in a timely fashion in Ohio

**2. What are the transportation responsibilities of your organization?**

- Represents all segments of the trucking industry in Ohio
- Relates with all legislative and governmental agencies in pursuance of the objectives of the trucking industry.

**3. What are your organization's most significant transportation problems?**

- Some problems that are significant are indirect transportation problems e.g.,
  - lack of qualified truck drivers;
  - fluctuating fuel costs adversely impact operating costs given that most trucking contracts are long term.
  - High fuel taxes for trucks is the "killer"- high operating costs
  - Trucks represent less than 10% of all vehicles but pay 40-44% of highway taxes.
- Highway congestion, translating to delay affecting just-in-time delivery operations.
- Traffic accident abatement management - early response is identified as a problem.

**4. What are your organization's most significant coordination issues in working with other organizations to soive transportation problems?**

- No specific significant coordination issues noted.
- "Jurisdictional jealousies" apparent
- "One-stop shop" sounds desirable but the limitations of implementation given the large number of agencies with diverse institutional differences is noted.

5. **What ITS technologies is your agency currently using? What are your agency's plans for their expansion?**

- ITS technologies currently used relate to the Advantage I-75 project which is based on the concept that vehicles travel between Michigan and Florida.
- No exclusive ITS technologies used by OTA

6. **What are other relevant issues you would like to discuss regarding IIS technologies with particular reference to CVOs.**

- Advantage I-75 project not very useful to truckers because, very few trucks travel the entire length of the I-75 corridor, and that enforcement personnel are more confident in visual inspections of both the driver and the vehicle.
- Truckers are forced to buy transponders for which they have little use. Companies have deployed advanced technologies in their own ways e.g., G.P.S. systems.
- Location of the scales for the Advantage l-75 project in Ohio seems to the defeat the objective. Trucks involved primarily in short operations may not use such scales and therefore do not need the transponders.
- ITS deployment is thought to be very useful in the following areas:-
  - signage for early warnings of congestion, accident, construction, detour, general traffic conditions and other forms of delay
  - use of WIM installations for weight enforcement reduces delays
  - tremendous potential in incident and emergency management

**General thoughts**

- there is a limit to what Advantage l-75 project can offer
- agencies do not take truckers concerns seriously in the decision-making process
- trucking community sees the objectives of ITS deployment defeated in their implementation process, e.g., truckers buy transponders to join the program and are charged extra for using the technology. Result is big trucking firms are withdrawing from the program because they do not find it cost-effective for their operations.
- trucking industry open to technological advancements that will improve operations but in most cases their views are ignored.

**Commercial Vehicle Operations**
**Inventory of Existing Infrastructure and Utilization**

**1. What is the distribution of weigh scales in Ohio**

- Nothing noted at interview

**2. What is the distribution of major trucking terminals in Ohio**

- Nothing noted at the interview

**3. What are limitations on designated highways in Ohio? How are hazardous material transportation routed?**

- Harzmat routing is a problem because it involves taking form one area and relocating elsewhere - no matter where it is, those immediately affected complain.

**4. What are current and future local or regional Plans and programs, respecting ITS ?**

- Nothing noted at the interview

**5. What is relationships to any statewide, national or neighboring state/region plans and programs**

- Nothing noted at the interview

**6. What are some notable deficiencies in the system that are candidates for ITS deployment**

- Congestion is a problem and opportunities exist for ITS deployment through driver information system (early warnings, signing).
- trucking companies are interested in technologies that will help achieve environmentally safe operations and efficient fuel consumption without sacrificing horsepower.
- Qualified truck driver shortage is a major problem something that cannot be addressed through ITS deployment.
- High truck operating costs is a noted a major concern to the industry.

**DAYTON-SPRINGFIELD ITS EARLY DEPLOYMENT PLAN**
**LOCAL AGENCY INTERVIEWS**

| | | |
|---|---|---|
| **AGENCY:** | Public Utility Commission of Ohio | |
| **DATE:** | 16/10/96 | |
| **TIME** | 10:00 a.m. | |
| **ATTENDEES:** | Tom Yager, | PUCO (PubIic Utilities Commission of Ohio) |
| | Edward Fekpe | Battelle |
| | William Nelson, | Battelle |

**Summary of Questions and Answers**

**1. What are the transportation goals of your organization?**

- To ensure safe and efficient operation of trucks, buses and trains within the provisions of safety and economic regulations in Ohio

**2. What are the transportation responsibilities of your organization?**

- Responsible for economic registration of for-hire trucking, induding insurance verification, collection of some taxes and special permitting for harzadous material movements. PUCO maintains database of for-hire trucks and harzadous materiaIs (for-hire and private)
- Monitoring of safety operations through two programs (a) random inspection of vehicles and drivers on the highways, and (b) sub-contract inspections to State Highway Patrols
  - About 70,000 drivers and vehicles inspected each year. Inspections are conducted at weigh scale sites, rest areas and any convenient location on the highway.
  - Dayton-Springfield study area is a difficult study area to stop trucks for inspection.
  - Inspection activities focused on the Interstate System. About 70-80 inspectors from agency, state patrol troopers but most of inspectors are Civilians.
- Off-road audits inspections i.e., inspection of safety records. About 1000 such audits per year on average.

**3. What are your organization's most significant transportation problems?**

- A major problem identified is having to deal with large amounts of data and which changes frequently. Collection, analysis and dissemination of information is a problem due to the size of data.
- Because of the large number of state agencies that truck companies have to deal with, there is duplication of data.
- Problem of coordination and streamline of inspection operations. Databases required for inspections are maintained by different agencies. Difficulty in coordinating and utilizing these databases for efficient inspection operations.

4. **What are your organization's most significant coordination issues in working with other organizations to solve transportation problems?.**

- general lack of enthusiasm for coordination among agencies
- fear of consolidation and possible loss of control by some agencies
- not enough inspection in the Dayton-Springfield study area to indicate any significant transportation problem

5. **What ITS technologies is your agency currently using? What are your agency's plans for their expansion?** .

- Economic and safety inspection process are semi-automated through the use of laptop computers and link-up databases with fax-back facilities to trucking companies
- Ability to link up with National database to obtain information on records of trucking companies respecting compliance with regulations
- On-line verification of vehicle registration and licensing information
- Advantage I-75 program offers automated screening process
- Plans to use portable transponder readers by inspectors to reduce traffic delays

6. **What are other relevant issues you would like to discuss regarding ITS technologies with particular reference to CVOs.**

- Automated enforcement of harzadous materials movement to identify whether trucks are approved for routes on which observed.
- Incident and emergency management is a key issue because of the economic and safety consequences to truck operations.
- Driver information system is critical to advise drivers on congestion, emergency situation, expected delays. This is viewed as an area that will be of immense help to truck operations. This will significantly improve traffic flow and reduce delays.
- Funding is key to deployment

**Commercial Vehicle Operations**
**Inventory of Existing Infrastructure and Utilization**

**1. What is the distribution of weigh scales in Ohio**

- Details of location and types of weigh scales and WIM sites shown on a map.

Some definitions:
- enforcement station = weigh station
- vehicle classification - in pavement sensors for vehicle classification and traffic data collection
- weigh scales from 3 different manufacturers, PAT, Toledo and IRD.
- 2 weigh scales on I-75 one in each direction of travel, The Toledo scales are employed in the Advantage I-75 project and located in, the Toledo area.

- In the study area, there is one in-pavement vehicle classification sensor on I-75 in Miami county and one Toledo type WIM scale on I-675 in Greene county.

**2. What is the distribution of maior trucking terminals in Ohio**

- Nothing noted at the interview - referred to OTA

**3. What are limitations on designated highways in Ohio? How are hazardous material transportation routed?**

- There are no designated route system in Ohio.
- Hazardous material routing is determined by legislative agreement between geographical boundaries. Routing is done on regional basis. Harzmat not allowed in tunnels. No signing at tunnels, drivers expected to know the restriction.

**4. What are current and future local or regional Plans and programs, respecting ITS ?**

- Plans afoot to add more WIMs - ODOT will continue to deploy WIMS in order to better monitor weights, traffic flow and mix of traffic.
- 2 new WIM sites planned for Toledo area in the near future.
- ITS technology deployed by another agency e.g., PUCO
- Agency will continue to deploy technology to benefit and to achieve agency's own goals.
- Potential expansion of I-75 ITS project to adjacent states. This has to be a state initiative in order to be effective - the agencies are responsible for the highways. No specifics plans available at this time.

**5. What is relationships to any statewide, national or neighboring state/region plans and programs**

- No specific relationship with national plans identified.
- Advantage 75 is a regional plan, therefore any expansion plan will be regional in nature
- Permits are being issued on a regional basis on certain routes. These are standardized techniques, procedures and accounting systems for permitting to allow smooth operation of trucks in the region. However, permits form a small part of the process.

**6. What are some notable deficiencies in the system that are candidates for ITS deployment**

- A major problem is, demonstrating and convincing governments that there is a real benefit in deploying ITS.
- Too much attention on technical aspects, not enough selling
- Opportunities exist for Advantage I-75 expansion to neighboring states in the region. Necessary dialogues have began but specifics not available.
- Opportunities exist for automated roadside safety inspection.
- Opportunities exist for hazardous materials incidence response handling.